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Effect of production process capabilities on supply chain performance of sugar manufacturing firms in western region, Kenya

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ABSTRACT

Supply chain performance refers to the ability of an extended supply chain to meet end-customer demands through responsive inventory and capacity management, timely delivery, and product availability. This study examined the effect of production process capabilities on supply chain performance. The study was anchored on the Dynamic Capabilities Theory. A descriptive survey research design was employed, targeting four sugar manufacturing firms with a total population of 281 respondents. A sample size of 165 was selected from a population of 281 using purposive and simple random sampling techniques. Data was collected using structured questionnaires. A pilot study conducted at Kibos Sugar Company in Kisumu County tested the reliability and validity of the research instruments. Reliability was confirmed with Cronbach's alpha coefficients of 0.7 and above, while validity was ensured through expert reviews. Data analysis involved descriptive statistics (frequencies, percentages, means, and SDs) and inferential statistics, including linear, multiple, and hierarchical regression analysis. The findings revealed that production process capabilities ($r = 0.525$, $R^2 = 0.276$, $p = 0.000$) had a significant positive effect on supply chain performance. It is evident that production process capabilities had a significant positive influence on the supply chain performance of sugar manufacturing companies since they have a significant impact on the outcomes attained. These results implied that supply chain performance was higher for sugar manufacturing companies with more robust production process capabilities. The study recommends that sugar manufacturing firms streamline production cycles.

Keywords: Production Process Capabilities, Supply Chain Performance, Sugar Firms, Western Region, Kenya

I. INTRODUCTION

Production process capabilities are becoming known worldwide as one of the most important sources of supply chain performance (SCP) in the rapidly competitive and integrated markets. These strengths comprising of process control, manufacturing efficiency, flexibility and technological competence help firms to achieve a consistent response to quality, cost and delivery requirements (Schönsleben, 2018). Powerful production processes will increase coordination among supply chain operations, which will boost responsiveness, dependability, and customer value.

However, research over the years and especially in advanced economies has demonstrated that, firms whose capabilities in production processes are well established are better positioning themselves in achieving high levels of SCP, by cutting down the cost of operation, lead times as well as accuracy of delivery. In the contemporary supply chains, however, internal production efficiency is not enough (Noneng *et al.*, (2023) The companies need to coordinate between their suppliers, distributors and production processes to be able to maintain smooth material flows, good capacity utilization, and better performance measures like inventory turnover and order delivery rates.

The positive correlation between capabilities in production processes and the results of the supply chain is evidenced by the global contexts. Asian studies have shown that process capability, flexibility, and information integration are the key factors to improving supply chain integration and competitiveness (Wu *et al.*, 2015; Nimmy *et al.*, 2019). However, the results are still also inconsistent across the industries and regions implying that the efficiency of production process capabilities depends on the circumstances of management approaches, the use of technology, and the state of the markets.

Weak production capabilities and use of outdated technology and infrastructural constraints have remained a major challenge to manufacturing companies in Africa in regard to the supply chain. The research conducted in nations like South Africa and Ghana suggests that when there is better planning of production, control of process as well as coordination of operations, the supply chain efficiency can be greatly improved and the performance of the organization will be enhanced (Muller & Ndlovu, 2023 Adelwini *et al.* (2023). In spite of these revelations, the high cost of production and the poor quality of output remains a major challenge to many African industries.



The sugar industry in Kenya, which is mainly concentrated in the Western Region, is critical to the economy of Kenya with ineffective production processes, outdated infrastructure and lack of coordination of the supply chain. Constant production shortages and losses point to the necessity to have greater capabilities of the production processes to enhance SCP (Njeru & Omwenga, 2021). Though the available research literature recognizes this relationship, little empirical research has focused on the same based on the sugar industry in Kenya, especially when management style moderation is considered. This paper thus aims at filling this gap by looking at how production process capabilities influence the performance of supply chain of sugar manufacturing companies in Western Kenya.

1.1 Statement of the Problem

Sugar manufacturing business in the Western Region of Kenya is one of the crucial economic players in the economic sector in terms of provision of employment, and generating revenue and rural development. Nonetheless, the industry has been facing poor performance in its supply chains because of lack of capabilities in the production processes including inefficient production planning, high frequency of process breakdowns, poor quality control, and low application of contemporary technologies (Mutuku *et al.*, 2018). The effects of these challenges have been increased cost in operations, delays in production, poor and inconsistent quality of products, and failure to react favorably to the market demand.

According to reports by World Bank in 2016, the lack of growth in Kenya in the manufacturing industry is partly due to the inefficiency in production process and unstable management practices. These weaknesses in the sugar sub-sector have caused loss of competitiveness, market share within the East African Community as well as recurrent supply chain disruptions. The sugar manufacturing companies in Western Kenya especially have difficulty in ensuring that production patterns are in tandem with demands of the supply chains in the business with resulting in supply chain imbalances and delays.

Whereas past research has been conducted into the supply chain performance of different industries, little has been done to the impact of production process capability on the supply chain performance of the sugar manufacturing industry in Western Kenya. Also, the mediating power of the management style in this relationship has not been fully studied. This paper is thus aimed at filling this gap by analyzing the role of production process capabilities in supply chain performance with management style taken as a moderating factor.

1.2 Research Objectives

The objective of this study was to determine the effect of production process capabilities on SCP of sugar manufacturing firms in Western Region, Kenya.

1.3 Research Hypothesis

H0₁: There is no significant effect of production process capabilities on SCP of sugar manufacturing firms in Western Region, Kenya.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Dynamic Capabilities Theory

Dynamic Capability Theory (DCT) was initially proposed by Penrose (1959), is a direct extension of the Resource-Based View in that it brings in the aspect of time-based renewal, creation, and reconfiguring of resources by firms to suit changing environments. Dynamic capabilities are focused on the capability of an organization to incorporate both internal and external resources to adapt successfully to uncertainty in the market as well as improve performance.

Dynamic capabilities in the sugar industry allow companies to diversify and innovate using the by-products like molasses, bagasse and press mud to make ethanol, electricity, cardboard and other value-added products to increase profitability and market share. In spite of the mentioned strengths, DCT has some drawbacks such as conceptual ambiguity, operational difficulties, and little empirical grounds to make causal inference. The theory is specifically applicable in analyzing the capabilities of the production processes and how this impact on supply chain performance (SCP) (Bleady *et al.*, 2018). Through DCT application in production processes, companies can also be able to increase the flexibility, innovation, learning and allocation of resources, resulting in better coordination, efficiency, quality and on time delivery in the supply chains.

In general, DCT is a valuable conceptual framework that helps to gain insight into the way in which flexible and innovative production operations enhance the work of supply chains and competitive advantage in the context of the sugar manufacturing industry, which is dynamic and uncertain in Western Kenya.

2.2 Empirical Review

Process capability is the capability of the firm to perform production and logistic activities in a way that is consistent and efficient so as to minimize costs, standardization of work and attainment of customer specifications. It also focuses on stability of the process, repetitiveness, and conformance with set standards, which is an objective metric of how the production processes meet quality and service expectations (Liu & Luo, 2012).

Empirical studies point to the strategic value of the capabilities that are related to production in propelling firm performance. Csiki et al. (2023) proved that production dynamic capabilities and production ordinary capabilities have a different but important impact on the formation of shop-floor practices, including the adoption of Industry 4.0 and lean production, and both types of capabilities directly affect the performance of the firm. Nevertheless, their research failed to associate these abilities with the performance of the supply chains and was carried out in a different manufacturing environment to sugar companies in western Kenya.

Equally, Sousa *et al.* (2018) discovered that good practices in production and operations management have positive effect on the financial performance of the organizations, especially through supply chain integration. Their results indicate that it is of high significance to match the internal production processes with the larger supply chain systems, even though the research was conducted in the country of Jordan and did not concentrate on the sugar industry situation.

In terms of the strategic capabilities, Adebajo et al. (2018) defined the positive relationships between innovative process and product capabilities, manufacturing performance, and supply chain integration. Based on the resource-based view and the institutional theory, their study revealed that the efficiency and competitiveness are improved with better process innovation. However, the research was on the capability development, but did not directly look at the outcome of the performance in the supply chain.

Continuous monitoring of process capability is also supported by the quality and process control studies. As Sousa et al. (2018) found, the lack of regular review of the processes capabilities may result in the increased variability and inefficiencies in the long run, despite the seemingly good quality of production at the beginning. Their results put emphasis on the need to have quality control mechanisms that are continuously maintained to maintain operational effectiveness.

Process capability, as revealed by Liu and Luo (2012), was found the most significant process logistics capability of influence on firm performance in the context of logistics and manufacturing over the other two dimensions of flexibility and information integration. Although flexibility and information integration positively contributed to competitive advantage, process competence directly affected overall organizational performance the most, which supports the importance of a stable and efficient process.

The Kenyan based research gives more support to the correlation between process capability and supply chain results. Mutuku et al., (2018) and Kimwaki et al., (2022) have discovered that operational processes, technology integration, and process competency are connected positively to supply chain and organizational performance in manufacturing companies. These results indicate that process capability is a vital area that improves performance of supply chains, but there is limited evidence in the sector, especially in the sugar industry of Western Kenya

III. METHODOLOGY

3.1 Study Area

The research was based on the Western Region of Kenya, that is, Bungoma and Kakamega counties, because of the presence of a large number of sugar firms. The companies targeted were four large companies which included Mumias, Nzoia, West Kenya and Butali Sugar Companies. The fertile soils and agreeable weather in the region have made it a sugarcane producing area. This study sought to find out the effect of logistic capabilities and management style on Supply Chain Performance (SCP) among these companies as a gap in existing research. The area was also convenient in data collection as access to sugar firms and diversity were available.

3.2 Research Design

Descriptive survey design was used to study the relationship between Production process capabilities and supply chain performance (SCP) in Western Kenya's sugar manufacturing firms. The goal was to describe the situation without altering conditions, providing a snapshot of the population's characteristics, trends, and demographics. This design allowed for a systematic description of existing conditions, identifying patterns and relationships, and analyzing the moderating effect of management style.

3.3 Target Population

The study population comprised staff drawn from four sugar manufacturing companies, namely Mumias Sugar, Nzoia Sugar, West Kenya Sugar, and Batali Sugar Company, covering procurement, finance, and marketing and

logistics departments. In each company, the procurement function consisted of one procurement manager, one procurement sectional head, and between nine and twelve procurement staff, yielding a total of 42 procurement staff across all firms. The finance department in each company was represented by one finance manager, one sectional head, and between seven and ten finance staff, resulting in an overall total of 34 finance staff. Similarly, the marketing and logistics function in each company included one logistics manager, one logistics sectional head, and between 42 and 48 marketing and logistics staff per firm. Overall, the study targeted a total population of 281 respondents, comprising 4 procurement managers, 4 procurement sectional heads, 42 procurement staff, 4 finance managers, 4 finance sectional heads, 34 finance staff, 4 logistics managers, 4 logistics sectional heads, and 186 marketing and logistics staff across the four sugar companies.

3.4 Sample Size and Sampling Procedures

The study used purposive sampling to select respondents with relevant information, and simple random sampling to choose employees from each department, ensuring no bias and equal participation. The sample size was determined using Yamanes' (1967) formula, aiming for efficiency, representativeness, reliability, and adaptability. The sample was 165 respondents and Table 1 below shows the distribution of the sample sizes from various companies.

Table1

Sample Distribution

Company	Population	Sample size
Mumias Sugar	72	42
Nzoia Sugar	75	44
West Kenya	66	39
Butali Sugar Company	68	40
Total	281	165

3.5 Data Collection Instruments

Primary data was collected through standardized questionnaires containing both open and closed-ended questions. This relates to the data collection tools and the process by which they were developed. A questionnaire included a list of unstructured questions, structured questions, and Likert rating scales relevant to the topic of study, as well as space for respondents' exploratory answers and choice selection. The Likert scale was set at 5 = SA, 4 = A, 3 = N, 2 = D, and 1 = SD. Closed-ended questions were useful in collecting viable quantitative data, however open-ended questions allow respondents to provide in-depth responses and the freedom of responding queries. There were five sections in the questionnaire. Information pertaining to personal data was included in Section A, and data regarding the effects of logistic capabilities on SCP in relation to the four objectives was included in Sections B through F. Drop and pick were used to administer the questionnaires.

3.6 Reliability

Reliability assesses the extent to which the results obtained from a sample can be replicated. The point at which a testing device consistently generates accurate findings or records after multiple trials. If a scholar conducts a test on an issue twice and obtains the same scores on both administrations, then the tool is deemed accurate (Mugenda & Mugenda, 2003).

The internal consistency of the research instruments was assessed by computing Cronbach's alpha using data from the pilot study. Kothari (2007) suggested that a reliability coefficient of 0.7 was deemed acceptable. Cronbach's alpha scores of are classified as outstanding, good, acceptable, poor, and unacceptable. If the instrument exhibits poor reliability, individual items within the scale must be re-evaluated and modified or replaced entirely as necessary.

3.7 Validity

First, using a pilot study and the content validity through the expert opinion approach, the investigation determined whether the research instruments are valid. The designated research supervisors were contacted to examine and clarify the validity of the research instruments in light of the expert opinion. The supervisor's advice assisted the researcher in evaluating the validity of the study tools. The guidance containing recommendations, explanations, and further information. The required adjustments were made using these ideas to see if the outcomes would hold true over time.

3.8 Data Analysis

Data analysis involves examining, purifying, converting, and modelling data to find and emphasize relevant information, draw conclusions, and offer decision-making assistance. Subsequently, the data collected for the study

were classified, organized into tables, and grouped together. The primary data was modified by carefully examining the acquired raw data for any errors or omissions and making the necessary corrections. This necessitated a comprehensive analysis of the filled questionnaires. Subsequently, the responses were assigned numerical values to encode the data and limit it to a finite number of categories or classifications. The data was presented using tables. The data analysis was performed in alignment with the research purpose. Several statistical tests rely on certain assumptions on the distribution and quality of the data. One of the crucial requirements that data must adhere to is:

3.9 Descriptive Statistics

Essentially, this showcased the pattern in the fundamental data. The researcher utilized descriptive statistics, including measures of variability, central tendency (mean and SD), maximum and minimum values. Descriptive statistics were used to create measures and indices that summarize the collected data in a concise manner (Kothari, 2007). The interviews were analyzed using a thematic analysis approach to examine qualitative data. The qualitative data was systematically arranged and prepared for theme analysis. This was crucial in the quantification of independent variables. The data was displayed in tabular format.

Inferential Statistics: Model 1: A Simple linear regression model was constructed:

$$Y = B_0 + \beta_1 X_1 + \varepsilon \dots \dots \dots (i)$$

Where;

Y = SCP

B_0 = Constant

β_1 = Coefficients

X_1 = Production process capabilities

ε = Error Term

3.10 Ethical Considerations

Ethical considerations were prioritized to ensure the study's integrity and respect for participants. Measures included protecting participant privacy, maintaining confidentiality, obtaining informed consent, minimizing harm, and ensuring transparency and fairness. The researcher also ensured proper citation to avoid plagiarism, upholding academic honesty.

IV. FINDINGS & DISCUSSION

4.1 Response Rate

A total of 165 questionnaires were sent for data collection, of which 140 were completed and returned. The response rate was 84.85%, suggesting a conducive environment for the generalizability of the research findings to a wider community. The achieved response rate of 84.85% in this study is considered good, as it above the 60% threshold.

Table 3

Response Rate

State of Response	Frequency	Percentage
Response	140	84.85
Non response	25	15.15
Total	165	100.00

4.2 Analysis of Descriptive Data

The data are descriptive and originate from the summation of responses to structured inquiries regarding the impact of logistic capabilities on the SCP of sugar production enterprises in the Western Region.

4.2.1 Production Process Capabilities

There are descriptive statistics on the extent to which production process capabilities determines SCP of sugar manufacturing firms in Western Region, Kenya as summarized in Table 4.

Table 4*Descriptive Statistics: Production Process Capabilities*

Statement	5	4	3	2	1	Mean	SD.
The firm has reduced the set-up time between the production of one item to another part to ensure continuous availability of products to clients	5.7 (8)	38.6 (54)	44.3 (62)	8.6 (12)	2.9 (4)	3.36	0.83
The firm practices product customization by allowing customers to provide unique features like colour, design and packages relating to their orders	8.6 (12)	27.1 (38)	47.1 (66)	11.4 (16)	5.7 (8)	3.21	0.96
Our firm can effectively simplify the logistics processes related to manufacturing, material handling, shipment and delivery	14.3 (20)	44.3 (62)	34.3 (48)	0 (0)	7.1 (10)	3.59	0.99
The firm has the capability to quickly scale up production when demand increases	5.7 (8)	38.6 (54)	45.7 (64)	5.7 (8)	4.3 (6)	3.36	0.85
The firm has achieved the minimum of its total costs through effective operations and technology	2.9 (4)	40 (56)	45.7 (64)	7.1 (10)	4.3 (6)	3.30	0.82

The results show that there is moderate agreement (Mean = 3.36; SD = 0.83) that the company has reduced set up time between production runs. This finding is consistent with that of Csiki et al. (2023), who underscore the fact that the minimization of set-up time is one of the fundamental operational capacities that support manufacturing flexibility and responsiveness. In their analysis, they are able to show that companies that have implemented lean production methods especially Single Minute Exchange of Die (SMED) processes are more likely to have a favourable flow of production and enhanced availability of products.

Nonetheless, such a large percentage of respondents who responded with moderate agreement (44.3%) indicates that, despite the efforts to reduce set-up time, the effect is not yet well maximized or even experienced equally in all operations. This partially supports the findings that Liu and Luo (2012) recorded that the benefits of operational flexibility are often incremental and not instantaneous with respect to performance especially when a firm is shifting to advanced operational practices.

The findings of the survey indicate that there is a moderate agreement (Mean = 3.21; SD = 0.96) as to whether or not the firm engages in product customization. This can be compared to Sousa et al. (2018), who state that mass customization can increase customer value in case of the effective use of flexible manufacturing systems and combined information technologies. The relatively large dispersion (SD = 0.96) suggests that the perception of the customization capabilities is variable, which might indicate the uneven integration of the product lines of the customization process.

On the same note, Liu and Luo (2012) argue that customization plays an important role in creating customer satisfaction, although it can create complexity in operations when not facilitated by effective coordination systems. The results thus imply that customization may exist but the system or process may still limit its operational implementation.

The greatest degree of consensus among the respondents was noted to be depending on streamlining logistics processes (Mean = 3.59; SD = 0.99). This result reinforced the arguments by Csiki et al. (2023) who emphasize that logistics integration of manufacturing, material handling, and distribution is a key factor to improve the performance and efficiency of operations.

Additionally, Rahim et al. (2020) state that digitisation of logistics, as well as coordinated supply chain operations, minimise lead times and redundancies in operations. The mean score is quite large, which implies that the logistics optimization can be among the most developed operational opportunities of the firm that can be used to provide better services and manage costs.

Rapidness in production that the firm exhibited when demand increased generated an average amount of agreement (Mean = 3.36; SD = 0.85). This is consistent with Liu and Luo (2012) who established that capacity planning, the coordination of suppliers, and the ability to flex the workforce are of critical importance with regards to the scalability of production.

Although the results show that the company does have a certain degree of responsiveness to the external environment, the prevalence of moderate concurrence indicates that scaling can be limited by capacity constraints or resource inflexibility, as Csiki et al. (2023) warn that flexibility capabilities need to be reinforced continuously in order to maintain responsiveness in volatile markets.

Lastly, the findings indicate moderate consensus that the company realizes minimum total costs by having efficient operations and technology (Mean = 3.30; SD = 0.82). This fact is consistent with Noneng et al. (2023), who claim that the efficiency of the integration of technologies and the efficiency of the processes are essential factors that lead to the decrease of costs, though the influence depends on how well the technology and the operational strategy are aligned.

In line with Liu and Luo (2012), the results indicate that cost efficiency is not entirely a technological adoption process that is dependent on process coordination and organizational learning, which could be the reason why a large number of respondents were found to be neutral.

Overall, the results show that the company has mediocre to high operational strengths especially in streamlining of logistics where other strength areas, including set-up time reduction, customization, scalability and cost minimization are partially developed. These findings support the previous research by Csiki et al. (2023) and Liu and Luo (2012), which note that operational excellence is not a one-time affair but an ongoing process that must be invested in terms of process integration, flexibility and technology alignment.

4.2.2 Supply Chain Performance

The study sought to gather descriptive statistics on the SCP of sugar manufacturing firms in Western Region, Kenya as summarized in Table 5.

Table 5

Supply Chain Performance

Statement	5	4	3	2	1	Mean	S.D
The firm has shortened the lead time period between placement of an order and delivery of the same to clients	1.4 (2)	70 (98)	28.6 (40)	0 (0)	0 (0)	3.73	0.48
The firm has efficient delivery means that ensure faster movement of goods to final destinations	2.9 (4)	65.7 (92)	31.4 (44)	0 (0)	0 (0)	3.71	0.51
The firm's production systems have reduced on the average time it takes to process raw materials into completed end-products	2.9 (4)	50 (70)	47.1 (66)	0 (0)	0 (0)	3.56	0.555
The firm has ensured strict adherence to the degree to which an order's specifications match the original order request from a client without any deviations	10 (14)	55.7 (78)	31.4 (44)	0 (0)	2.9 (4)	3.70	0.77
The firm has improved on required adherence standards of companies in relation to relevant laws, regulations and industry standards regarding to product and process qualities	10 (14)	55.7 (78)	31.4 (44)	0 (0)	2.9 (4)	3.70	0.77

The results of the current study to a great extent support previous empirical data that can be found in studies by Mutuku et al. (2018) and Kimwaki et al. (2022) concerning the impact of operational efficiency and process integration on the outcome of the performance of firms, in terms of shorter lead time, effective delivery, efficiency of the production cycle, and ensuring quality compliance.

To begin with, the overlaying effect of concurrence (mean = 3.73; SD = 0.48) that the company has successfully managed to decrease the lead time between order placement and delivery is consistent with Mutuku et al. (2018), who concluded that the organization of supply chains and processes automation can greatly decrease the order fulfillment period in industrial manufacturing companies. On the same note, Kimwaki et al. (2022) discovered that companies investing in responsive logistics systems and demand-driven planning have shorter lead times and better customer satisfaction. The small standard deviation in the current study indicates that there is some commonality in the perception of the respondents thereby validating the argument that the two studies put forward that lead time reduction is a direct result of productive operational practices.

Secondly, the unanimous agreement on the effective delivery methods of the firm (mean = 3.71; SD = 0.50) is correlated with the results of Kimwaki et al. (2022), who found that the efficiency of the distribution strategies and optimization of the transport systems promotes the speed and reliability of the product delivery. Similarly, Mutuku et al. (2018) highlighted that integrated delivery systems minimize transit delays and logistical inefficiencies and allow the goods to arrive at final destinations on time. The average consensus of few respondents also indicates the transitional quality of improved delivery systems that are observed in both investigations wherein improvements are not made immediately, but gradually.

In reference to the production systems, the results (mean = 3.56; SD = 0.555) indicate that the company has achieved moderately success in the time taken to transform the raw materials to the final products. This finding is reflective of Mutuku et al. (2018), who stated that the decrease in the production cycle time is typically slow and relies on the degree to which the technological equipment is utilized and the workflow is streamlined. Conversely, Kimwaki et al. (2022) hold that companies that have developed lean manufacturing operations are more likely to record a more significant decrease in processing duration. The mean score in this study is relatively low and thus could be a sign of partial adoption of such production efficiencies.

Moreover, the strong values of the consistency in following the order specifications (mean = 3.70; SD = 0.77) corroborate Kimwaki et al. (2022), who concluded that the quality of conformance and deviation of the customer

requirements are enhanced by the process standardization and quality control mechanisms. On the same note, Mutuku et al. (2018) realized that adherence to customer specification builds trust and relationship with clients on long term basis. The minor percentage of disagreement in the present study indicates that there are isolated inconsistencies, which is agreeable in both studies as being prevalent in times of operational adaptation.

Lastly, the results of enhanced compliance with legal, regulatory, and industry quality standards (mean = 3.70; SD = 0.77) found a lot of reflection in the work by Mutuku et al. (2018), who state that the compliance with the quality standards is one of the major predictors of operational maturity and competitiveness. Kimwaki et al. (2022) also argue that adherence to regulatory and industry standards increases the reliability of the process and credibility in the market. The consensus among respondents of the present study is so strong thus validating the claim by both research that quality compliance is part of sustainable operational performances.

In general, the findings of the current research align with the empirical data provided by Mutuku et al. (2018) and Kimwaki et al. (2022) and support the argument that efficient operational systems, including logistics, production, and quality management, play an important role in efficiency, responsiveness, and compliance in organizational performance.

4.3 Linear Regression Analyses

To assess the effect of production process capabilities on supply chain performance of sugar manufacturing firms in Western Region, Kenya, a regression analysis was conducted. Findings as shown in Table 6.

Table 6

Production Process Capabilities on Supply Chain Performance

Production Process Capabilities on Supply Chain Performance									
Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.525 ^a	.276	.271	.74135	.276	52.626	1	138	.000
a. Predictors: (Constant), Production Process Capabilities									
ANOVA ^a									
Model		Sum of Squares		df	Mean Square		F	Sig.	
1	Regression	28.923		1	28.923		52.626	.000 ^b	
	Residual	75.846		138	.550				
	Total	104.769		139					
a. Dependent Variable: Supply Chain Performance									
b. Predictors: (Constant), Production Process Capabilities									
Coefficients ^a									
Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.		
		B	Std. Error	Beta					
1	(Constant)	.372	.431			.864	.389		
	Production Process Capabilities	.876	.121	.525		7.254	.000		

a. Dependent Variable: Supply Chain Performance

There is a link between production process capabilities and supply chain performance of sugar manufacturing firms in Western Region, Kenya as shown by the R value of 0.525 in the model summary tabulation. As a consequence, a rise in production process capabilities should lead to supply chain performance. The R square, or coefficient of determination, demonstrates that production process capabilities account for 27.6% of the variance in supply chain performance ($R^2=0.276$). This suggests that production process capabilities have a major bearing on the results achieved.

The F test indicates that the model is an excellent fit for describing the variance in the dependent variable, with a value of $F = 52.626$, $P < 0.05$. In addition, this demonstrates that production process capabilities are a reliable indicator of supply chain performance. According to Table 6, at a significance level of $0.00 < 0.05$, the unstandardized regression coefficient (β) for production process capabilities was 0.882. This suggested that a shift of one unit in production process capabilities would shift supply chain performance by 87.6%. Results in sugar manufacturing firms as a consequence of production process capabilities were estimated using the following regression equation:

Supply chain performance = $0.372 + 0.876$ production process capabilities

According to the findings, it is clear that production process capabilities have a major beneficial impact on supply chain performance. This suggests that sugar manufacturing firms with stronger production process capabilities will achieve higher levels of supply chain performance. Adebajo et al. (2018) study discovered a positive relationship between manufacturing performance and creative product and process capabilities such as production process

capabilities. This further agrees with Mutuku et al. (2018) who sought to determine the influence of process capabilities on the SCP of Kenyan manufacturing firms. The study conducted by Kimwaki et al. (2022) investigated the impact of operational processes and procedures on the performance of manufacturing firms situated in Kenya. The research findings unveiled a noteworthy correlation between performance and operations and processes, indicating that these variables significantly impacted the performance of manufacturing companies in Kenya.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

Based on results provided the study derived the following conclusions: Production process capabilities have a major bearing on the results achieved hence it is clear that production process capabilities had a major beneficial impact on supply chain performance of sugar manufacturing firms. This suggested that sugar manufacturing firms that had stronger production process capabilities achieved higher levels of supply chain performance.

5.2 Recommendations

Basing on findings and recommendations provided the study presents the following recommendations; Sugar manufacturing companies have production as their key objective and hence they should set time for cycles to achieve production. Furthermore, production should be customized. Similarly material handling should be done cautiously to minimize wastages.

Conflict of Interests

The author has not declared any conflict of interest.

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Scheduled desludging model and pit latrine emptying mitigation measures for peri-urban areas, Lusaka, Zambia: A hermeneutic phenomenological approach

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ABSTRACT

The study purpose was to improve the sanitation situation in George Compound, one of the peri-urban areas in Lusaka, Zambia. The researcher adopted an interpretive hermeneutic paradigm in which knowledge was established through Gadamer's hermeneutic cycle, relying on iterations and fusion of horizons by merging the researcher's background and participants' views. Epistemologically, the researcher adopted a subjective epistemological stance in which knowledge was generated through the researcher's personal experiences and reflective interaction with participants. Further, the researcher adopted a value-bound axiological stance, hence acknowledging his positionality in terms of personal background, experience, values, and beliefs. The study sample size was 29 participants, disaggregated as 10 males, 15 women, and 4 key informants. The study uncovers that scheduled desludging is a strategy that ensures predictable and affordable pit emptying. The study established that households register their pit latrines and make small routine contributions to facilitate emptying. The study further notes that the introduction of scheduled desludging enables community residents in the peri-urban areas to easily empty the pit latrines once they fill up. Moreover, the desludging has environmental and public health benefits, which include, among others, prevention of the pit latrines from overflowing due to delayed pit emptying of pit latrines by most customers, which is typical of most peri-urban areas in Lusaka. The study informs policy on strengthening the capacity of service providers to ensure a timely and efficient turnaround period for desludging. Ensure strengthening the environmental laws on licensing of transporters of effluent to avert desludging in the open environment premised on the low restorative charges that are significantly non-deterrent to the polluters. The study concludes that scheduled desludging is a game changer in resolving on-site sanitation pit emptying challenges given the financial constraints that many residents face. The study recommends strengthening capacities of service providers to ensure a timely and efficient turnaround period of desludging. The finding is novel because it offers peri-urban and institutional insights into pit emptying through scheduled desludging, considering that desludging previously lacked a scheduled plan; as a result, most households chose to relocate and construct new pit latrines elsewhere. The study purpose was to improve the sanitation situation in George Compound, one of the peri-urban areas in Lusaka, Zambia.

Keywords: Scheduled Desludging, Partial Payment, Pit Latrine Emptying, Stakeholders Participation.

I. INTRODUCTION

The Government of Zambia remains committed to accelerating universal access to water supply and sanitation to achieve a healthy and productive nation (National Water and Sanitation Council [NWASCO], 2018). Pit latrines are the dominant form of sanitation in peri-urban areas, used by about 88% of households (Economic Commission for Africa [ECA], 2018). To improve public health, the government, with support from the African Development Bank (AfDB), constructed 5,000 household toilets in peri-urban areas (AfDB, 2015). However, sanitation challenges remain severe in peri-urban areas of Lusaka, where approximately 70% of the city's two million residents reside (Brown et al., 2019). Most households in Lusaka Province rely on on-site sanitation facilities, while only 15% are connected to the sewered network. Thirteen percent of the facilities used were improved toilets such as Ventilated Improved Pit (VIP) latrines, which can be safely managed if constructed to standard, while 19% of facilities were traditional and considered as 'unimproved' sanitation facilities (NWASCO, 2018).



Moreover, the sanitation situation is compounded by poor infrastructure and weak regulatory enforcement in most peri-urban areas (Lerebours et al., 2021). Equally, the roles and enforcement mandates among key regulators remain poorly defined, resulting in fragmented implementation of sanitation laws and standards (Netherlands Development Organisation [SNV], 2024). As a result of the poor sanitation situation in Lusaka, there have been recurrent outbreaks of cholera, typhoid, and dysentery, contributing to significant morbidity and mortality (Brown et al., 2012). Furthermore, these disease outbreaks cause the government to lose an estimated US\$194 million annually due to poor sanitation—equivalent to 1.3% of Gross Domestic Product (GDP) (Brown et al., 2012). At the global level, approximately 3.4 million deaths occur each year from water-related diseases (World Health Organization [WHO] & United Nations Children's Emergency Fund [UNICEF], 2017). Therefore, the researcher explored stakeholders lived experiences in sanitation programmes in Lusaka's George Compound.

The novelty of this study lies in its development of new, context-specific insights into the lived experiences of residents in George Compound, a highly dense peri-urban settlement. The study captures local nuances, challenges, and adaptive strategies that are unique to this community and underrepresented in existing sanitation literature. These context-specific findings enrich the body of knowledge on peri-urban sanitation dynamics and provide a foundation for designing interventions tailored to similar urban informal settlements. Thus, this paper explored mitigation measures for the perceived sanitation challenges identified in Lusaka's peri-urban areas. The study was anchored on Sustainable Development Goal 6 (SDG-6), which aims to ensure the availability and sustainable management of safe water and sanitation for all by 2030 (United Nations General Assembly [UNGA], 2010).

At the regional level, according to Agenda 2063, access to proper sanitation remains elusive in many parts of Africa, with about 20% of the population in Sub-Saharan Africa still practicing open defecation (African Union [AU], 2015). Moreover, the increase of unplanned settlements has been a major drawback on government efforts to provide safe water and adequate sanitation (Government of the Republic of Zambia [GRZ], 2022).

1.1 Statement of the Problem

The Government of Zambia remains committed to accelerating universal access to water supply and sanitation to achieve a healthy and productive nation (NWASCO, 2018). Pit latrines are the dominant form of sanitation in peri-urban areas, used by about 88% of households (ECA, 2018). To improve public health, the government, with support from the African Development Bank (AfDB), constructed 5,000 household toilets in peri-urban areas (Brown et al., 2012).

Sanitation challenges, however, remain severe in peri-urban areas of Lusaka, where approximately 70% of the city's two million residents reside (Brown et al., 2012). Most households in Lusaka Province rely on on-site sanitation facilities, while only 15% are connected to the sewered network. Thirteen percent of the facilities used were improved toilets, such as Ventilated Improved Pit (VIP) latrines, which can be safely managed if constructed to standard, while 19% of facilities were traditional and considered as 'unimproved' sanitation facilities (NWASCO, 2018).

Moreover, the sanitation situation is compounded by poor infrastructure and weak regulatory enforcement in most peri-urban areas (Lerebours et al., 2021). The roles and enforcement mandates among key regulatory actors remain poorly defined, resulting in fragmented implementation of sanitation laws and standards (SNV, 2024). As a result of poor sanitation in Lusaka, there have been recurrent outbreaks of cholera, typhoid, and dysentery, contributing to significant morbidity and mortality (Brown et al., 2012). Furthermore, these disease outbreaks result in an estimated annual loss of US\$194 million due to poor sanitation, equivalent to 1.3% of GDP (Brown et al., 2012). Similarly, approximately 3.4 million deaths occur each year from water-related diseases globally (WHO & UNICEF, 2017). Therefore, the researcher explored stakeholders lived experiences in sanitation programmes in Lusaka's George Compound.

1.2 Research Objective

The objective of this paper was to address sanitation challenges through scheduled desludging in Lusaka's peri-urban areas.

1.4 Research Question

How can the stakeholders perceived sanitation challenges be mitigated in Lusaka's peri-urban areas?

II. LITERATURE REVIEW

2.1 Theoretical Review

The study adopted systems theory, developed in the 1940s by biologist Ludwig von Bertalanffy. Systems theory is a conceptual framework based on the principle that the components of a system can best be understood in the context of their relationships with each other and with other systems, rather than in isolation (Wilkinson, 2011). Systems theory



has significantly influenced our understanding of organizational behaviour and change, and a systems approach can increase our ability to identify the underlying causes of problems and determine optimal solutions (Wilkinson, 2011). Systems thinking examines systems from the perspective of the entire system, interrelated subsystems, and repetitive patterns among subsystems. Systems thinking provides a holistic analytical method to analyse how a system's components relate and function over time and within the context of larger systems. It is useful for complex or complicated problems that cannot be solved by a single entity, as complex systems cannot be effectively understood from only one perspective (Beehner, 2025).

This theory aligns with the study's ontological position, which holds that reality is multiple and requires understanding the whole by its various parts. In this context, applying systems thinking helps in understanding stakeholders' experiences of sanitation programme implementation as well as how systems interact to address sanitation challenges in the study area, thus assisting the researcher in the interpretation and discussion of findings.

2.2 Conceptual Review

Desludging is recognized as an important strategy for urban sanitation improvement, particularly in unplanned urban settlements (United Nations [UN], 2019). In unplanned urban settlements (UUSs), land space for the construction of new sanitation facilities to replace those filled up by accumulating faecal sludge (FS) is lacking (Strande et al., 2014). Thus, desludging remains the only option to keep the facilities usable (Strande et al., 2014). The study explored this aspect and established similarities for most of the peri-urban areas. Nevertheless, desludging services have remained inadequate in most UUSs. Residents in these areas use sanitation facilities which are full beyond their safety levels. Alternatively, they desludge them using unhygienic methods, thus posing public and environmental health risks (Strande et al., 2014). The study found that desludging services offered by traditional pit emptier's were unhygienic, but those offered by trained and certified emptier's were hygienic and complied with standard operating procedures and regulations.

On average, it is estimated that cities in low- and middle-income countries (LMICs) only safely manage 50% of the total amount of faecal sludge generated (Strande et al., 2014). The remaining amount is either left in pits for a long period or haphazardly disposed of in the surrounding environment, posing serious public and environmental health risks (Strande et al., 2014). As an essential part of the sanitation service chain, hygienic desludging facilitates the effective collection of faecal sludge for further processing and subsequent reuse (Strande et al., 2014). The persistence of unhygienic desludging practices warrants thorough investigation to enhance the benefits of hygienic desludging for human health and the environment. Recently, there has been increasing recognition among sanitation practitioners of the multidimensional structure of the sanitation service system (Dreibelbis et al., 2013; Tilley, 2024).

Seleman et al. (2020) observed a lack of monitoring and evaluation systems for desludging, lack of guidelines on installation of mechanisms for identifying when latrines are filling up, and outdated laws with relatively low penalties against manual pit emptying and onsite disposal. Regarding routine monitoring of desludging practices, the study found that desludging services or practices are lacking in the routine sanitation and hygiene monitoring and evaluation (M&E) system. As such, the magnitude of the desludging problem goes unnoticed. Similarly, the national sanitation and hygiene guidelines lack instructions on the installation of features for observing when the pit is getting full, especially for toilets with an offset pit such as pour flush. As a result, residents are unaware of when the pit becomes full and are unable to prepare financially for hiring hygienic desludging services (Seleman et al., 2020).

Furthermore, there is limited documented information about pit latrine inspection installation in the study area. On analysis of regulations for desludging and faecal sludge management (FSM) in general, the study found that regulations used for controlling open discharge of faecal sludge through flooding out or onsite disposal through methods such as pit diversion are outdated, with relatively low penalties. For example, in Ilala Municipal Council, the penalty for indiscriminate discharge of domestic wastewater under the Local Government Act (LGA) of 2002 is Tanzanian Shilling (TZS) 50,000 (US\$21.9) (Seleman et al., 2020). Additionally, a high-water table was found to be a major contributing factor for reliance on unhygienic desludging. Due to the high-water table, water percolates into the pit, resulting in toilets filling up quickly, especially during rainy seasons. Some residential houses are required to desludge every three months. This results in desludging being seen as an expensive service (Seleman et al., 2020).

Seleman et al. (2020) also found that unclear distribution of responsibility for desludging between landlords and tenants was a significant factor influencing unhygienic desludging. In rented houses, responsibility for desludging is usually not explicitly stated in any contract. The general practice is to share desludging charges between landlord and tenant. The challenge arises when one party does not have money at hand to contribute to the cost when the toilet is full. In most cases, residents resort to releasing small amounts of faecal sludge through flooding out until enough money is collected for hiring a vacuum tanker. Gender roles and wealth were also found to influence unhygienic desludging. In the study areas, men spend most of their time away from home doing income-generating activities, while women stay at home and carry out family-related activities such as housekeeping and caring for the young and those going to school. Because men are often in charge of finances, landlords face difficulties contacting male tenants for desludging cost-

sharing. Women experience the full latrine more by sight and smell and thus have more incentive to desludge. The study also found unstable and fluctuating incomes among residents in UUSs. The quantitative part of the study found that across the study areas, only 206 (52.2%) had at least one family member with a bank account, most of whom reported having only the minimum allowable balance (Seleman et al., 2020).

The Energy and Water Utilities Regulatory Authority (EWURA, 2020) disclosed that solid items are thrown into the pits and eventually clog desludging equipment, increasing desludging time and energy consumption. Operators were reported to discontinue pumping pit contents when they find large quantities of solid waste. Improvement of desludging in these areas should therefore be accompanied by education on the proper disposal and management of solid waste, especially taboo-ridden and culturally sensitive waste such as menstrual waste, which is often disposed of in the latrine pit (EWURA, 2020). At the community level, unavailability of desludging services was found to be a significant factor for over-reliance on unhygienic desludging. In the study areas, locations where residents can access services or obtain phone numbers to call for safe desludging services were lacking. This is contrary to other basic infrastructure services, such as water supply and solid waste collection, where water kiosks and solid waste collection centres have been provided or identified, respectively (Seleman et al., 2020).

The study conducted by Tilley (2024) found that technological factors at the interpersonal/household level contributing to unhygienic desludging include a lack of clear modalities for accessibility and affordability of desludging technology, such as cost-sharing for hiring desludging equipment. In rented houses, landlords take the lead in collecting contributions and deciding on desludging methods or the size of the vacuum truck to be hired. The problem arises when the toilet fills up quickly after desludging, making tenants skeptical about the amount paid or the size of the vehicle hired. Dissatisfied tenants are less likely to contribute next time the pit gets full. When this happens, toilets stay full for a long time without being desludged, or the landlord discharges some faecal sludge volume, referred to as 'kupunguza' (shrink) in Swahili, or waits for the pit content to shrink during the dry season (Seleman et al., 2020). There is a need to consider drivers of behavioural change in planning for improvement of faecal sludge management (FSM); however, this idea has not yet been put into practice. The purpose of this study was to determine drivers of unhygienic desludging practices by investigating contextual, psycho-social, and technological factors influencing current desludging practices in UUSs of Dar es Salaam (Tilley, 2024).

Jaiswal et al. (2022) established that the common practice for desludging of septic tanks is 'demand-based desludging' rather than regular service, which has adverse social and environmental impacts. Scheduled desludging is advocated to maintain the performance of septic tanks and avoid adverse effects on the environment. Wai, a small town in Maharashtra, India, is the first city in India to implement scheduled desludging. The quality of water before and after scheduled desludging is assessed, monitoring groundwater, river water, effluent from drains, and supernatants from septic tanks. Results suggest a positive impact of regular desludging on septic tank performance, improving the quality of drain water, groundwater, and river water.

The city of Wai implemented scheduled desludging as a municipal service partially financed by a sanitation tax. A private company provides desludging service on a 'pay-for-performance' basis by the city government (Jaiswal et al., 2022). The Central Public Health and Environmental Engineering Organization guidelines recommend that the settled solids from a septic tank be desludged regularly for it to function well, suggesting yearly desludging, but if not feasible, tanks should be cleaned at least once in 2–3 years or as needed (Chirgwin et al., 2021). Outdated laws with low penalties and lack of routine data are key contextual factors. Psycho-social factors include perceived inability to control unhygienic desludging and lack of shame among those performing unhygienic desludging. Technological factors relate to the weakness in existing desludging technologies and skepticism about the performance of manual desludging hand pumps (Seleman et al., 2020).

The study further found that the perceived inability to control unhygienic desludging among community members and lack of shared values against flooding out of faecal sludge maintain the status quo of unhygienic desludging practices. The reliance on unhygienic desludging is exacerbated by weak and poorly performing desludging technologies, including vacuum trucks and small-scale equipment. Improvement in FSM, particularly regarding desludging, should consider the multiple forces hindering safe and reliable desludging. A necessary step to start improvement is amending municipal by-laws to reflect requirements of the Public Health Act 2009 on flooding out practices. Other steps include instituting routine monitoring for desludging services and investing in education and behaviour change to increase understanding of sanitation facilities suitable to local context and available desludging technological options (Seleman et al., 2020). The scheduled desludging model benefits all stakeholders along the FSM chain and can improve service functionality. This enables informal settlement dwellers to plan for desludging their sanitation facilities, reducing the risk of environmental pollution from faecal matter during the rainy season (Kulabako et al., 2007).

For service providers, this model improves business operations, likely increasing profit margins through additional revenue gains from economies of scale resulting from more clients and trips (Rao et al., 2016). For city authorities, the model ensures city-wide coverage of services, supporting efforts to eliminate manual emptying and

enforce standards in latrine and septic tank construction, making it easier to regulate and plan for scheduled emptying. For the National Water and Sewerage Corporation (NWSC)/treatment plant, the model positively impacts the quality of faecal sludge delivered for processing and planning of treatment (Chowdry & Kone, 2012). The environmental regulator, National Environment Management Authority (NEMA), needs to enhance effective monitoring of service providers to ensure compliance with waste transportation regulations. With support from local leaders and community activation teams in informal settlements, emptying schedules can be locally arranged, as piloted with mobile transfer stations (Mawejje et al., 2018).

2.3 Empirical Review

The Netherlands Development Organisation (SNV, 2024) found that the risk associated with on-demand emptying of containment systems is that it typically occurs only when full or overflowing. Introducing a scheduled desludging model means emptying occurs based on a pre-agreed schedule, preventing overflows. An additional feature replaces the traditional lump sum payment for emptying services with a more affordable monthly payment scheme. This change made the service accessible to all income groups, with an agreed two-year emptying cycle and a monthly fee of ZMW 15 (EUR 0.67) that fully covers service costs, replacing the previous lump sum of ZMW 550 (EUR 24) (SNV, 2024). With scheduled desludging implemented in the peri-urban area of Kamushanga, uptake of scheduled emptying subscriptions grew rapidly, with 92% of the population subscribing.

This widespread acceptance demonstrates that, when suitable and economical solutions are available, there is significant demand for safe emptying services. The pivotal factor was increased service affordability and availability of reliable and professional service providers. The scheduled desludging model in Kabwe can contribute to the financial sustainability of the utility, resulting from an expanded customer base and increased efficiency, as the service becomes predictable and is strategically outsourced to private sector operators (SNV, 2024). The Lukanga Water and Sanitation Company partnered with local operator Twikatane, supported by SNV to formalize, equip and train its members. This initiative expanded service coverage and guaranteed adherence to strict occupational health and safety standards throughout the sanitation chain, from household collection to disposal at the treatment site. A pre-defined schedule also benefits the operator, who can now anticipate revenue, as opposed to previously unpredictable income under an on-demand model. The introduction of a scheduled desludging plan in Kabwe has set a benchmark for professional and reliable service, significantly increasing accountability as subscribed users demand that the utility delivers on its pre-defined schedule, and that emptiers provide a quality service (SNV, 2024).

Greene et al. (2021) noted that scaling up the scheduled emptying model requires investment that utilities may struggle to raise, as more vehicles, equipment and operators are needed. Treatment capacity must also be expanded to manage increased sludge loads. In terms of consumer behaviour, households tend to dispose of solid waste in their toilet pits, making emptying arduous and time-consuming, and creating constraints at the treatment end as the sludge includes non-decomposable materials. The quality of toilets is another limitation, as households often build unlined toilets that collapse during emptying. Onsite sanitation is often perceived as requiring large investments with little return, similar to sewers. Business model assessment, including scheduled desludging, is not yet common practice for service providers. Accessibility is a major factor influencing the choice of an emptying method, especially in unplanned settlements with poor roads (Kennedy-Walker et al., 2015). Poor design and construction of containment facilities, with limited or no access for emptying, also pose challenges (Holm et al., 2018). Accessing finance is difficult, as banks and private entrepreneurs are reluctant to invest in pit-emptying businesses (Opel et al., 2011).

Some households with little or no money to pay for emptying services resort to gravitational emptying, the most dangerous method, as large volumes of untreated faecal sludge are discharged into the environment (Jenkins et al., 2015). Manual emptying, while cheaper, poses significant health risks to users, emptiers and the environment in the long run. Although mechanical emptying is generally more expensive, some studies reported that manual emptiers may demand exorbitant prices in areas inaccessible by mechanical emptiers (Jonathan & Masudul, 2008). Muxímpua and Hawkins (2012) disclosed that manual emptiers in Kibera, Nairobi, face social challenges such as violence and extortion, and in Maputo, Mozambique, they often face harassment. Manual emptiers are marginalized, considered to be doing undignified work, and often operate at night to avoid being seen (Muxímpua & Hawkins, 2012). Manual emptiers also face financial burdens from high healthcare costs, as they lack health insurance or compensation for lost workdays due to illness.

Mougoue et al. (2012) revealed that technical challenges faced by faecal sludge emptiers were reported in 14 studies. The main technical challenge was poor construction of sanitation facilities. In Maputo, Mozambique, and in Duala and Yaoundé in Cameroon, households build facilities without following technical standards, posing risks to emptiers. The lack of regulation leads to imbalanced competition, as companies pay taxes, but individuals do not (Akumuntu et al., 2017). In Yaoundé, Cameroon, public authorities impose taxes at disposal sites, but revenues are not reinvested in the system. Prices for emptying fluctuate due to unofficial fees and bribes paid by emptiers.



III. METHODOLOGY

3.1 Research Paradigm

The study was anchored on an Interpretive Hermeneutic Paradigm and viewed reality from a relativist ontology, which holds that multiple realities exist. Scotland (2012) asserts that reality is relative to how individuals experience it at any given time and place. According to Scotland (2012), ontology is defined as a branch of philosophy concerned with the assumptions we make to believe that something makes sense or is real, or the very nature or essence of the social phenomenon being investigated. Further, Scotland (2012) posits that, in line with this definition, the researcher studied reality by integrating multiple perspectives.

In terms of epistemology, the researcher adopted a subjective epistemological stance, in which knowledge is generated through the researcher's personal experiences and interaction with participants, as established by Kivunja and Kuyini (2017). Using this stance, the researcher generated knowledge through co-construction and interpretation of meaning from the participants' experiences. Additionally, the researcher adopted a value-bound axiological stance, acknowledging that their own positionality—in terms of personal background, experience, values, and beliefs— Influenced the study while prioritizing ethical considerations. Kivunja and Kuyini (2017) define axiology as the ethical issues that must be considered when planning a research proposal. Given the nature of the approach adopted, the research was value-bound and thus inseparable from the researcher (Saunders et al., 2009). Therefore, positionality in this study helped integrate the researcher's beliefs and experiences in the co-construction of meaning during the study. Lastly, the researcher deployed a methodological stance covering the research approaches, designs, methods, and procedures used in a well-planned investigation (Keeves, 1997). Inductive reasoning is a logical process in which multiple premises, believed true or found true most of the time, are combined to obtain a specific conclusion or supply evidence for the truth of a conclusion (Sauce & Matzel, 2017). The researcher applied inductive logic in data collection and analysis, reasoning from the specific (participants sampled) to the general (study area).

3.2 Research Design

The researcher adopted an exploratory case study design to gain in-depth insights about sanitation by focusing on a single case. Gerring (2004) emphasizes that a case study is an intensive study of a single unit for understanding a larger class of similar units, where the unit refers to a spatially bounded phenomenon observed at a single point in time or over some delimited period. According to Cresswell (2007), a case study is a suitable approach when the inquirer has identifiable cases with boundaries and seeks to provide an in-depth understanding of the cases or a comparison of several cases.

3.3 Sampling, Location, Population, and Procedure

3.3.1 Study Location

The study was conducted in George Compound, one of the peri-urban areas located west of Lusaka. The study area was selected based on the sanitation programme interventions implemented there by the Government of Zambia through the Lusaka Sanitation Program.

3.3.2 Study Population

The study population is defined as a set of cases that are determined, limited, and accessible, and that constitute the subjects for sample selection, who must fulfil several characteristics and distinct criteria (Arias-Gómez et al., 2016). The population of George Compound is 71,566 in Lima Ward (Zambia Statistics Agency [ZAMSTAT], 2022). The population for this study was 29 participants. These participants comprised representatives from sanitation programmes, the Ward Development Committee, the Water and Sanitation Committee, the Lusaka City Council (Public Health Department), Zambia Environmental Management Agency (Inspectorate), National Water Supply and Sanitation Council (NWASCO), and Lusaka Water Supply and Sanitation Company (Peri-Urban Department). The population was selected based on their experience working with sanitation programmes in peri-urban areas.

3.3.3 Study Sample Size

The researcher adopted a qualitative research approach, with the sample size determined based on the principle of data saturation. Suri (2011) notes that data saturation occurs when further data collection yields little in terms of new themes, insights, perspectives, or information. The sample size was determined after conducting interviews with 29 participants (10 males and 15 females) and 4 key informants.

3.3.4 Sampling Procedure

Purposive sampling is the intentional selection of informants based on their ability to elucidate a specific theme, concept, or phenomenon (Robinson, 2014). The researcher employed criterion-based purposive sampling, which



requires setting specific criteria for participant selection. These participants were handpicked because the criteria enabled relevant data collection (Haruna, 2023). Participants who had experienced and benefited from the sanitation programmes implemented by the government over the past ten years were selected. Government stakeholders were chosen based on their experience implementing sanitation programmes in the study areas. The selected participants comprised beneficiaries of sanitation programmes, the Ward Development Committee, the Water and Sanitation Committee, the Lusaka City Council (Public Health Department), Zambia Environmental Management Agency (Inspectorate), National Water Supply and Sanitation Council (NWASCO), and Lusaka Water Supply and Sanitation Company (Peri-Urban Department).

3.4 Data Collection Instruments

Primary data were collected using key informant interviews targeting government officials and community opinion leaders, and in-depth interviews targeting sanitation programme beneficiaries.

3.4.1 Key Informant Interviews

The researcher deployed key informant interviews (KIIs) because of their capacity to conduct intensive individual interviews with a small number of respondents, exploring their perspectives on a particular idea, programme, or situation. This method is appropriate for open-ended questions in qualitative studies. KIIs are a valuable qualitative method aimed at collecting in-depth insights and viewpoints from individuals with specialized expertise (Akhter, 2022). The method involved one-on-one interviews with government officials and community leaders based on their experience in the sector or with sanitation programme interventions in the study area.

3.4.2 In-Depth Interviews

In-depth interviews were used to generate qualitative data. These interviews can be unpredictable and varied, making them well suited for exploratory research and studies interested in meaning and experience (Osborne & Grant-Smith, 2021). This data collection instrument was appropriate for gathering sanitation beneficiaries lived experiences in an unrestricted manner, as opposed to structured instruments that restrict participants' responses.

3.4.3 Data Collection Procedures

Self-administered interviews were conducted in the field to elicit participants' views and experiences. Interviews were conducted either in English or translated into the local language spoken by the participant. Study participants were selected using criterion-based purposive sampling. The interviews lasted between 50 to 60 minutes, and audio-recording devices were used after obtaining consent from participants.

3.5 Data Analysis

Raw data were analysed manually using a reflexive thematic analytical approach. Thematic analysis is an appropriate method for seeking to understand experiences, thoughts, or behaviours across a dataset, with themes being actively constructed patterns or meanings derived from the data that answer a research question, rather than mere summaries or categorizations of codes (Kiger & Varpio, 2020). The study adopted the Braun and Clarke framework for thematic analysis, which involves six steps: data familiarization, generating initial codes, identifying themes, reviewing themes, defining and naming themes, and producing the report (Kiger & Varpio, 2020). These themes helped build patterns for interpreting the study findings in line with the study objectives and purpose.

3.6 Study Trustworthiness

The researcher ensured rigour by employing trustworthiness, which, according to Lincoln and Guba, relies on four criteria: credibility, transferability, dependability, and confirmability (Ahmed, 2024). Credibility was achieved by building trust and rapport with participants, allowing the researcher to gain nuanced insights into their experiences, behaviours, and beliefs. This also helped capture rich data that might not be evident during brief interactions (Ahmed, 2024). Transferability was achieved by thoroughly describing the research context, participants, and methods, enabling readers to evaluate the relevance of findings to their own settings (Ahmed, 2024). Dependability was ensured by thoroughly documenting each step of the research process, facilitating transparency and allowing others to replicate the study or assess its dependability by following the same procedures and understanding the rationale behind decisions made (Ahmed, 2024). Eryilmaz (2022) notes that creating and preserving an audit trail—a comprehensive log documenting decisions made throughout the research process—enables other researchers to reproduce the study, ensuring the dependability of the results. Confirmability was achieved by employing member checking to ensure that participants' viewpoints and experiences were accurately represented. This strengthens confirmability by providing participants the opportunity to validate or correct interpretations. Additionally, keeping a journal helped the researcher track evolving thoughts, biases, and reflections during the research process. This reflective practice enhances



transparency and provides insights into the researcher's subjectivity, contributing to the confirmability of the findings (Ahmed, 2024).

IV. FINDINGS & DISCUSSION

This section presents the study findings and the participants verbatims which were coded and anonymised by initials of the study area i.e. George Compound (GC) for beneficiaries and KII for the Key informants. The collected raw data from the field employed the open-ended interview guides in which the interview scripts were analysed using a reflexive thematic analysis which applied fusion of horizons and hermeneutic cycle to decipher the findings in line with the study objectives. The following are the findings:

4.1 The Scheduled Desludging Strategy

4.1.1 Registration of Pit Latrines

Scheduled desludging was introduced to ensure predictable and affordable pit emptying. Households register their pit latrines and make small routine contributions. A key informant described that:

A customer in the peri-urban area must register that they have a pit latrine; once they register, they paid a small amount towards desludging. (KII, LWSC).

4.1.2 Timely Emptying of Pit Latrines

The study uncovered that the introduction of the scheduled desludging enables the community residents in the Peri-Urban areas to easily empty the pit latrines ones they fill up. This strategy is being piloted in most Peri-Urban areas of Lusaka. An extraction from the key informants narrates that:

So that when the toilet fills up, they just call the service provider." This system empowers residents and encourages construction of lined and emptiable toilets. As further noted, "It brings the peri-urban residents to participate in sanitation service provision. (KII, LWSC).

4.1.3 Environmental and Public Health

The desludging has environmental and public health benefits which include among others prevention of the pit latrines from overthrowing due to delayed pit emptying of Pit Latrines by most customers which is typical of most peri-urban areas in Lusaka. One of the key informants interviewed narrated that:

This has a direct benefit for environmental and public health by curtailing pit overthrow. (KII 2).

4.1.4 Flexible Payment Model

The study unravels flexible payment arrangements which makes it easier for most of the community stakeholders to make sanitation charges towards pit emptying when full. This is better than waiting until the pit fills up which usually makes it difficult for most of the households to raise the required money for them to have their latrines emptied. In testimony to the above finding, one of the key informants interviewed expressed that:

We are trying to strengthen the sanitation service delivery model by piloting the scheduled desludging model which is an organised way of pit emptying frequency which is being piloted in George, Kanyama and chawama. This model enables the customers to pay small contributions which makes it easier for their pit to be emptied once they fill up. (Participant GC 22)

4.1.5 Solid Waste Challenges

Some of the community beneficiaries narrated that they faced challenges of delayed emptying of the toilets by the service providers when the toilet fills up and inconsistent emptying charges are a challenge for the community beneficiaries. One of the community beneficiaries narrated that:

Those who come to empty the toilets usually delay coming and they have different charges for emptying the toilet when it is full. (Participant GC 19)

4.1.6 Bury Pit latrines

The study revealed that most people in the Peri-Urban areas do not have plans to have their Pit emptied and they tend to bury the toilets once they fill up. This practice tends to pollute the underground water given that people use underground water from the shallow wells hence this creates public health challenges.

There is no plan for Pit emptying by most of the people in the Peri-Urban areas since they have not fully embraced the idea of Pit emptying. People do not have enough water and when their toilets fill up, they tend to bury them, and this affects underground water quality given that people use shallow wells hence this creates a sanitation situation. (KII, LCC).

4.1.7 Solid Waste and Texture

Additionally, the community beneficiaries faced quick filling up of the toilets because they are also used as solid waste dumping pits. They also face the challenge of lighting affecting their visibility at night and this is attributed to loadshedding. One of the community members submitted that:

The other challenge is that the toilets fill up fast because people are dumping solid waste in the latrines. There's also poor lighting at night which makes us not see clearly. We also face water challenges due to lack of water in some areas due to load-shedding. (Participant GC 6).

The study finds out that most pit latrines are also used for dumping solid waste which affects the texture and increases cost for separation of sludge from solid waste. An extraction from one of the key informants avers that:

There is also the challenge of solid waste disposal in the pit latrines which also affects the texture of the sludge as well as cost of separation. (Source LWSC).

4.1.8 Willingness to pay for Pit Emptying Services

The study revealed that people are not willing to pay for Pit emptying services and there are poor roads network in most peri-urban areas making it inaccessible by trucks transporting faecal matter. Further people also face financial challenges. One of the Key informants revealed that:

Not so many people want to pay for Pit emptying services and there are no roads making it difficult for the Peri-Urban areas to be accessed. Moreover, most of the toilets are not built to standards hence most people resort to using the informal Pit emptier. (Source KII- LCC).

4.1.6 Water Table Challenges of Desludging

The study found out that most of the pit latrines fill up quickly due to the raised water table. One of the key informants expressed that:

The pit latrines in some of the areas in George compound fill up quickly because of the high-water table (Participant GC 8).

4.2 Discussion

The study revealed that service providers take a long time to respond to service provision in peri-urban areas. This finding is consistent with Seleman et al. (2020), who posit that at the community level, unavailability of services is a key factor contributing to over-reliance on unhygienic desludging. In the study areas, locations where residents can access services physically or obtain a phone number for safe desludging services were lacking. This is contrary to other basic infrastructure services, such as water supply and solid waste collection, where water kiosks and solid waste collection centres have been provided or identified, respectively.

The study found that tenants are willing to contribute and pay for other utilities, such as electricity, whereas cooperation tends to be lacking regarding sanitation services. Moreover, even when people are willing to contribute, the departure of a tenant often creates challenges in emptying the toilets, illustrating the need for scheduled desludging to address this issue. Seleman et al. (2020) also noted that technological factors at the interpersonal/household level contributing to unhygienic desludging include the lack of clear modalities for accessibility and affordability of desludging technology, specifically the need for cost-sharing when hiring desludging equipment. In rented houses, landlords collect contributions and decide on the desludging methods or size of the vacuum truck to hire. Problems arise when the toilet fills shortly after desludging, causing tenants to become skeptical about the money paid to the operator or the vehicle hired. Dissatisfied tenants may be reluctant to contribute the next time the pit is full. As a result, toilets may remain full for a long time without being desludged, or the landlord may discharge some faecal sludge (FS) to shrink the volume—an action referred to as 'kupunguza' (shrink) in Swahili—or may wait for the pit content to shrink naturally during the dry season (Seleman et al., 2020).

The study found that scheduled desludging offers flexible payment arrangements, making it easier for most community stakeholders to pay sanitation charges for pit emptying when full. This is preferable to waiting until the pit fills up, which usually makes it difficult for households to raise the required funds to have their latrines emptied. Furthermore, the study disclosed that many areas in the study location have a high-water table, making it challenging to construct underground pit latrines. As an alternative, above-ground engineered designs are used, which can be problematic when construction materials are compromised, thus posing further desludging challenges. Contrary to reviewed literature, the study observed that a high-water table is a major contributing factor to reliance on unhygienic desludging. Due to the high-water table, water percolates into the pit, causing toilets to fill up quickly, especially during rainy seasons. Some houses are required to desludge every three months, making desludging a very costly service (Seleman et al., 2020).

Consistent with the above, the Netherlands Development Organisation (SNV, 2024) found that the risk associated with on-demand emptying of containment systems is that it typically occurs only when full or overflowing.

Introducing a scheduled desludging model means emptying occurs on a pre-agreed schedule, preventing overflows. An additional feature of the model is that it replaces traditional lump-sum payments for emptying services with a more affordable monthly payment scheme. This change made the service accessible to all income groups, with an agreed-upon two-year emptying cycle and a monthly fee of Zambian Kwacha (ZMW) 15 (EUR 0.67) that fully covers the service cost, replacing the lump sum of ZMW 550 (EUR 24) previously in place (SNV, 2024). With scheduled desludging implemented in the peri-urban area of Kamushanga, the uptake of scheduled emptying subscriptions grew rapidly, with 92% of the population subscribing. This widespread acceptance demonstrates that when suitable and economical solutions are available, there is significant demand for safe emptying services. The pivotal factor behind this success is increased affordability combined with reliable and professional service providers. The use of a scheduled desludging model in Kabwe can contribute to ensuring the financial sustainability of the utility.

The study revealed that most households in peri-urban areas do not plan for pit emptying; rather, once their pit latrines fill up, they are commonly buried and new ones constructed. This practice poses significant environmental and public health risks, particularly groundwater contamination, given that most residents rely on shallow wells for water. The infiltration of faecal matter into groundwater increases the risk of diarrheal diseases and other waterborne infections. Comparable findings are highlighted by Greene et al. (2021), who noted that in urban settings, pit latrines require periodic emptying due to limited space restricting the construction of new facilities. Furthermore, Strauss et al. (2000) and Thye et al. (2011) reiterate that pit latrines remain the predominant sanitation system among urban poor populations in many developing regions, especially informal and high-density settlements. In such environments, once latrines fill up, options for replacement are severely limited, making pit emptying the only feasible solution. Thus, safe and systematic management of full pits is crucial for sustaining sanitation access and protecting public health. The current study reinforces the argument that in peri-urban areas, where population density is high and reliance on shallow groundwater is common, failure to plan for pit emptying has direct implications for environmental health and disease prevention. This highlights the need for increased awareness, community engagement, and supportive regulatory mechanisms to promote the construction of emptiable toilet systems and the adoption of safe sludge management practices.

The study found that many households in peri-urban areas use pit latrines not only for human waste disposal but also as dumping sites for solid waste. This practice alters the texture and composition of faecal sludge, making it more difficult and costly to empty and treat. The presence of non-biodegradable materials such as plastics, rags, glass, and metal objects clogs emptying equipment and increases the labour required for manual removal. These challenges reduce the efficiency of faecal sludge management and pose significant occupational hazards for pit emptiers. These findings are consistent with existing literature. For example, Tomoi et al. (2025) observed that inappropriate household waste management practices significantly hinder safe pit emptying processes. Their study noted that households frequently dispose of solid waste such as “needles, bottles, and broken glass” into pits, accelerating pit fill-up, creating safety risks for emptiers, and obstructing pump-based emptying methods. Safe faecal sludge management is strongly influenced by household behaviour and awareness. The practice of using pit latrines as waste disposal sites is often linked to the absence of affordable and accessible solid waste collection services in informal settlements (Simiyu et al., 2017). Where such services are lacking, households adopt the latrine as a convenient alternative. However, as highlighted by Satterthwaite and Mitlin (2020), this coping mechanism undermines sanitation infrastructure and increases the cost and complexity of faecal sludge treatment. The current study therefore reinforces the importance of community sensitization on proper solid waste disposal and highlights the need for integrated sanitation and waste management strategies. Strengthening household awareness, improving waste collection services, and enforcing by-laws against disposing solid waste in latrines would reduce pit fill rates, protect emptiers’ safety, and enhance the sustainability of faecal sludge management systems.

The study revealed that willingness to pay for pit emptying services remains low among community beneficiaries. Despite the introduction of formal faecal sludge management services, many households continue to perceive pit emptying as costly and unaffordable, especially in contexts where incomes are unstable and livelihoods are informal. This unwillingness is compounded by financial constraints that make it difficult to plan for sanitation expenditures, particularly when sanitation is not prioritized compared to other immediate needs such as food, school fees, and household utilities. Additionally, the poor road network in most peri-urban areas presents a structural barrier, limiting accessibility for desludging trucks. As a result, residents face service delays or resort to informal pit emptying practices, including manual scooping or illegal dumping, which undermine public health and environmental protection efforts.

From a systems theory perspective, the issue of willingness to pay is not solely an economic limitation but reflects the interconnectedness of physical infrastructure, household capacity, service delivery models, and institutional coordination. The sanitation system extends beyond the household level to include road access planning (Lusaka City Council), regulation and monitoring (National Water Supply and Sanitation Council [NWASCO] and Zambia Environmental Management Agency [ZEMA]), service provision (Lusaka Water Supply and Sanitation Company

[LWSC]), and community governance structures such as Water and Sanitation Committees and Ward Development Committees. When any of these components are weak or misaligned, the entire sanitation chain is disrupted. For example, lack of road access prevents service provision, which in turn reinforces scepticism about the value of paying for sanitation services, thereby weakening compliance and willingness to invest in proper facility maintenance. This finding introduces a novel dimension to the discussion on urban sanitation. While existing literature often attributes low willingness to pay to lack of awareness or behaviour-related barriers, this study demonstrates that willingness to pay is shaped by a complex interaction of socio-economic pressures, infrastructural limitations, and perceptions of service reliability.

The study further revealed that employees involved in pit emptying services are required to undergo vaccination in accordance with the company's standard operating procedures. This requirement reflects an important occupational health safeguard, recognizing the inherent risks associated with contact with faecal sludge, including exposure to waterborne and communicable diseases. The emphasis on vaccination aligns with global best practices in faecal sludge management, which advocate for comprehensive health protection measures for sanitation workers.

From a systems theory perspective, this finding illustrates how sanitation service delivery depends not only on infrastructure and community compliance, but also on the capacity and well-being of frontline workers. The system operates through interconnected components—technical standards, operational procedures, worker safety measures, and regulatory oversight. Ensuring that sanitation workers are vaccinated strengthens the resilience of the sanitation system by maintaining workforce availability and reducing health-related service disruptions. However, the effectiveness of occupational safety depends on coordination between the utility company, the City Council Public Health Department, and national health institutions responsible for vaccination supplies and monitoring. Thus, this safety measure functions effectively only when institutional linkages are strong. This study adds a new dimension to the discourse on sanitation service delivery, drawing attention to the often-overlooked labour and occupational health component.

The study disclosed that many peri-urban areas are characterized by unplanned housing structures and narrow, irregular pathways, which make it difficult for service providers to access households when pit latrines fill up and require emptying. Poor spatial planning and high-density settlement patterns restrict the movement of vacuum trucks and other desludging equipment. As a result, households in these areas often depend on manual pit emptying or resort to unsafe practices such as abandoning filled pits or illegally discharging sludge into the environment. This situation limits the effectiveness of faecal sludge management services and increases the risk of environmental contamination and public health hazards. This finding is consistent with literature highlighting that many informal and peri-urban settlements develop without adherence to urban planning regulations. According to Jenkins et al. (2015), the lack of road access and structured plot layouts in informal settlements makes mechanical emptying either costly or physically impossible. Similarly, Simiyu et al. (2017) observed that sanitation access challenges are often compounded by the spatial arrangement of homes, where houses are built closely together, leaving no space for service vehicles to operate.

Moreover, the World Bank (2015) emphasizes that physical accessibility is a key determinant of sanitation service delivery under the Citywide Inclusive Sanitation (CWIS) framework. Where access is restricted, even well-designed policies and adequate service provision systems become ineffective. This reinforces the need for integrated urban planning and sanitation programming, where settlement layout, road networks, and drainage systems are considered alongside sanitation infrastructure development. Furthermore, another study revealed that accessibility—as observed by 18 studies—is a major factor influencing the choice of emptying method. Twelve of these studies discussed accessibility in terms of access to sanitation facilities, while ten discussed it in terms of availability of service providers. Accessibility negatively affects mechanical emptying, mainly in unplanned informal settlements with poor road conditions and narrow streets (Kennedy-Walker et al., 2015). Another problem is poor design and construction of containment facilities, which either have no or limited access for emptying, as some dwellers construct other structures on top of or too close to them (Holm et al., 2018). Although financial assistance is sometimes obtained through banks, thrift, or loans from relatives, accessing these funds is usually difficult, as banks, financial institutions, and private entrepreneurs are often unwilling to invest in the pit-emptying business (Opel et al., 2011).

The sanitation situation has been a growing concern for many stakeholders, including communities living in peri-urban areas. This situation has prompted service providers and policymakers to rethink sanitation solutions and strategies, particularly for pit emptying as and when facilities fill up. There are concerns about limited space for constructing new toilets and contamination of underground water due to the practice of burying latrines when they fill up. Most people in peri-urban areas do not have the financial capacity to pay for pit emptying, making it a low priority. To address this, the utility company adopted a pit emptying strategy that enables communities to make partial contributions towards desludging their pits when full. The flexibility of this payment model provides breathing space for most community stakeholders to have their pits emptied with minimal financial impact. Literature indicates that the lack of regulation leads to imbalanced competition among faecal sludge emptiers, as companies pay taxes, but individuals do not (Akumuntu et al., 2017). In Yaoundé, Cameroon, public authorities impose taxes at disposal sites, but the money collected is not reinvested in the system but rather used for personal gain. Additionally, there are no fixed



prices, as rates depend on the bargaining power of operators (Mougoue et al., 2012). In Nkobilok, Yaoundé, prices for emptying fluctuate due to undue obligatory or unofficial fees and bribes paid to officials by emptiers.

Furthermore, the study revealed that the introduction of scheduled desludging has improved predictability and affordability in pit emptying services. Under this system, households register their pit latrines and make small, routine contributions, enabling service providers to plan operations efficiently and reducing the risk of full pits overflowing or being emptied unsafely. This approach promotes household participation, accountability, and cost-sharing, fostering a sense of ownership and responsibility among community members. This finding aligns with global literature emphasizing that routine and scheduled pit emptying enhances the sustainability of on-site sanitation systems, particularly in peri-urban areas where informal settlements complicate service delivery (Strauss et al., 2000; Thye et al., 2011). Regular contributions by households make desludging services financially viable and reduce reliance on emergency or ad-hoc emptying, which is often more expensive and less safe. Therefore, scheduled desludging combined with active household participation ensures a more reliable, safe, and cost-effective approach to faecal sludge management. This strategy strengthens community engagement, supports formal service provision, and contributes to improved public health outcomes in peri-urban settlements.

The study found that the country has various sanitation laws, although most do not cover the initiative of scheduled desludging. This finding is consistent with Seleman et al. (2020), who noted that outdated laws with low penalties and lack of routine data are key contextual factors. Furthermore, the perceived inability to control unhygienic desludging among community members and the lack of shame among those performing unhygienic desludging are key psycho-social factors. Technological factors contributing to continued unhygienic desludging are linked to weaknesses in existing desludging technologies and general skepticism about the performance of manual desludging hand pumps (Seleman et al., 2020).

The Zambia Environmental Management Agency (ZEMA) enforces sanitation law through decision letter conditions issued to all facilities and routine compliance monitoring. However, the study revealed a lack of regular monitoring due to logistical challenges, consistent with findings from Uganda, which highlight the need for environmental regulators such as the National Environment Management Authority (NEMA) to enhance effective monitoring of service providers to ensure compliance with waste transportation regulations. With support from local leaders and community activation teams in each informal settlement, emptying schedules can be locally arranged, as was piloted with mobile transfer stations (Mawejje et al., 2018).

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The study objective was to understand the scheduled desludging model for emptying pit latrines in Lusaka's peri-urban areas. The study adopted an Interpretive Hermeneutic Paradigm, in which knowledge was established through the Gadamer Hermeneutic Cycle, relying on iterations and fusion of horizons by merging the researcher's background with participants' views. Knowledge was further generated through co-construction, anchoring the study on a subjective epistemology. The researcher positioned himself as value-laden given the qualitative approach adopted, enabling awareness of both personal values and those of study participants. The researcher leaned heavily on interpretive phenomenology to gather stakeholders' lived experiences. In view of the study objective, the study uncovers that scheduled desludging is a strategy that ensures predictable and affordable pit emptying. Households register their pit latrines and make small routine contributions. The study notes that the introduction of scheduled desludging enables community residents in peri-urban areas to easily empty pit latrines when they fill up. This strategy is being piloted in most peri-urban areas of Lusaka, Zambia. Moreover, scheduled desludging offers environmental and public health benefits, including prevention of pit latrines overflowing due to delayed emptying, which is typical in most peri-urban areas of Lusaka. Furthermore, the study reveals flexible payment arrangements that make it easier for community stakeholders to pay sanitation charges for pit emptying when full, rather than waiting until the pit fills up, which often makes it difficult for households to raise the required funds.

5.2 Recommendations

The study informs policy on strengthening the capacity of service providers to ensure timely and efficient desludging. It recommends strengthening environmental laws on licensing of effluent transporters to prevent open-air desludging, as current low penalties are not a sufficient deterrent to polluters. Lastly, Lusaka Water Supply and Sanitation Company (LWSC) should provide real-time responses to delayed service provision and regularly monitor online payment platforms for desludging.

Capacity building should be prioritized for staff to ensure buy-in for the piloting of scheduled desludging, especially for the on-site sanitation team and peri-urban zone leads. The utility company should also institute a



stakeholder engagement plan to reach out to community beneficiaries, community leaders, Ward Development Committees, faith-based organizations, and other community-based organizations.

Lusaka City Council should complement the utility company by facilitating the emptying of toilet facilities when needed, reviewing and updating existing memorandums of understanding with LWSC. This will help identify areas for collaborative efforts between the two institutions.

5.3 Ethical Consideration

The researcher conducted the study by ensuring the protection of human rights through guiding principles of dignity, integrity, right to self-determination, privacy, anonymity, beneficence, and confidentiality (Yip et al., 2016). Ethical issues were navigated by obtaining consent from the University of Zambia (UNZA), School of Humanities & Social Science Research Ethics Committee under the Directorate of Research and Post Graduate Studies (DGRS). Consent was also obtained from the institutions and community participants, who participated voluntarily and without coercion. Participants were provided with an information sheet outlining procedures for participation and withdrawal, thus highlighting potential risks.

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Self-service technology banking under scrutiny: Does it truly improve customer engagement?

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ABSTRACT

The purpose of this research was to uncover the effect of self-service technology banking on customer engagement among the banking clients of Kathmandu, Nepal. This study embraced website attributes, fulfillment, privacy, security, responsiveness, and ease of use as independent variables and customer engagement as a dependent variable. This research employed customer engagement theory for evaluating the emotional, psychological, and behavioral connections between brands of products or services and their customers. Similarly, the Unified Theory of Acceptance and Use of Technology (UTAUT) adopted in the study encompasses several ideas of technology adoption, particularly concerning the behavioral aspects of users. Moreover, this study embraced a descriptive and causal research design to test the research hypotheses. The study covered the digital banking service users in Kathmandu, Nepal. The primary sources of information used in the study were cross-sectional data. The purposive sampling technique was used for the study. Moreover, 416 structured questionnaires were distributed to the target customers, and 150 useful ones were received. Similarly, the research used descriptive and inferential statistics to reflect the widespread characteristics of respondents and generate the results of correlation and regression analysis. Additionally, the research explored reliability through the Cronbach's alpha test. The findings of the study revealed a positive effect of website attributes on customer engagement; however, this effect was found to be insignificant. Next, the findings depicted a positive and significant impact of fulfillment and privacy on customer engagement. Similarly, the evidence derived from this study depicted a positive and significant effect of security, responsiveness, and ease of use on customer satisfaction. Thus, the findings of this research can be a foundation for policymakers, banking institutions, and other stakeholders while crafting strategies to create customer engagement in digital banking services. Finally, the findings of this research can contribute to the existing theory by making it easier to comprehend technology-based banking services.

Keywords: Customer Engagement, Ease of Use, Responsiveness, Self-Service Technology Banking

I. INTRODUCTION

The banking institutions struggle against several dynamic forces emerging in their operation due to the volatility of their market. Next, an evolution of advanced self-service banking known as technology-driven banking service became a pivotal leading dimension of banks as client engagement expects remote self-services. Therefore, the integration of digital self-banking services fosters customer retention and engagement in remotely operational self-service banking in the modern era. Moreover, customer engagement is considered a cognitive position that occurs with a communicative and collective experience of clients for the brand (Brodie et al., 2011). Thus, one of the strategic paths of the banking institution to stabilize the institutional position better requires a forward move to mitigate prevailing complexity, emphasizing and fostering client engagement with the banking services (Harmeling et al., 2017).

In addition, the website elements associated with the self-service banking system are essential, as they exhibit quantifiable characteristics and functional aspects of technology-based services, which ultimately influence customer experiences, service efficacy, and usability (Palmer, 2002). Interestingly, all of these characteristics of the website have an impact on the degree to which customers are satisfied, the amount of faith that those customers have in the website, and the level of engagement that customers have with the self-service banking system (Loiacono et al., 2007).

Moreover, self-service banking offers high-quality, personalized features that add value and encourage customers to return, helping to build trust in online transactions and create positive feelings and stronger connections (Tuch et al., 2012; Eller et al., 2020). Next, the fulfillment also includes providing banking services to clients, such as processing transactions, setting up technology-based services, checking for compliance, and diagnosing issues, all of

which are important for client satisfaction and improving customer engagement in self-service banking (Roggeveen & Sethuraman, 2020). Similarly, fulfillment promotes banking clients' participation by providing seamless, efficient, and personalized experiences that align with client expectations, fostering trust and satisfaction in their interaction with self-service banking (Lemon & Verhoef, 2016). Additionally, digital self-service banking privacy embodies the system of client protection, particularly for the safeguarding of consumer information and data from unwanted access, while ensuring compliance with requisite standards and promoting transparent practices (Sahu et al., 2021). Thus, self-service privacy banking functionalities foster trust and reduce risk while encouraging regular visits and interactions via digital banking (Li et al., 2021). Importantly, customers are encouraged to make efficient use of self-service banking when they are guaranteed the privacy system (Hwang et al., 2022).

Moreover, security in self-service banking systems is a crucial factor of service quality, including institutional and technological measures used to safeguard client data and ensure safety in digital transactions, which provide many levels of protection. This security also improves customer engagement in self-service banking, promoting a safer transaction gateway, eventually driving frequent usage and generating more trust (Chua et al., 2021). Next, responsiveness is seen as a crucial element of self-service banking services, significantly contributing to the enhancement of client engagement with digital banking systems. Furthermore, responsiveness denotes the speed, efficacy, and efficiency of self-service banking in promptly addressing client concerns and resolving other difficulties (Parasuraman et al., 1988). Importantly, the responsiveness associated with self-service banking improves client engagement by providing rapid and seamless interactions that meet consumer expectations. Consequently, prompt transaction processing, swift resolution of current concerns and error recovery mitigate dilemmas and enhance confidence, eventually fostering consumer involvement (Dabholkar, 1996; Zeithaml et al., 2000). Similarly, the user-friendliness of self-service technology banking plays a crucial part in customer engagement, where ease of use reflects the extent to which customers see self-service as straightforward and simple to use (Davis, 1989). Therefore, user-friendliness in self-service technology banking substantially enhances consumer engagement by reducing cognitive load and alleviating perceived limitations, hence promoting the frequent use of digital services (Venkatesh et al., 2003).

In the Nepalese context, some of the research revealed in this field relates to enhancing the quality of customer services (Gautam & Sah, 2023). Next, a study on customer satisfaction with mobile banking services in Nepalese commercial banks was conducted (Goet & Kharel, 2022). Similarly, the next discovery explored understanding service quality, customer satisfaction, and loyalty in commercial banks in Nepal (Adhikari et al., 2025). Moreover, another study was conducted on the impact of digitalization on customer satisfaction in Nepalese commercial banks (Niroula, 2024). Further studies exist on customer-driven evaluation of service quality in Nepal's banking sector (Poudel & Niraula, 2024). In addition, previous research identified a connection between self-service banking and consumer happiness and loyalty. Especially, the evidence from prior research is found to be inconsistent. Nevertheless, the Nepalese banking sector has yet to explore the relationship between self-service technology banking and client engagement via a deeper inquiry. Therefore, this research aims to examine the impact of self-service banking, including website attributes, fulfillment, privacy, security, responsiveness, and simplicity of use, on consumer involvement.

1.1 Research Objectives

The general objective of this study is to investigate the impact of self-service technology banking services on customer engagement. Further, the specific objectives reflect the following:

- i. To study the status of self-service technology banking services and clients' engagement.
- ii. To assess the association between website attributes, fulfillment, privacy, security, responsiveness, ease of use, and customer engagement

II. LITERATURE REVIEW

2.1 Theoretical Review

The literature review of this research article encompasses significant theoretical works to construct a research foundation, followed by an empirical evaluation of the research variables. Customer engagement theory, as proposed by Brodie et al. (2011), evaluates the emotional, psychological, and behavioral connections between brands of products or services and their consumers. This ideology emphasizes interaction and trust-building as essential components (Vivek et al., 2012; Hollebeek et al., 2014). Consequently, consumer involvement is multifaceted, including mental, emotional, and behavioral dimensions that contribute to the establishment of customer loyalty and value (Pansari & Kumar, 2017). Furthermore, the technology-driven self-service banking framework enhances customer engagement by facilitating personalized, real-time interactions between customers and service providers (Harmeling et al., 2017).

In addition, the Unified Theory of Acceptance and Use of Technology (UTAUT) encompasses several ideas of technology adoption, particularly concerning the behavioral aspects of its users. The principal elements of this philosophy are performance expectancy, which denotes the perceived benefits of technology-based services, and effort expectancy, sometimes referred to as ease of use, inherent within the services outlined in the theory. Furthermore, the UTAUT framework emphasizes social influence as a primary element, illustrating the impact of peers on the adoption of technology-based services. Additionally, it includes facilitating conditions as a key component, highlighting the robustness of the support system for these services. In summary, the core idea of this approach is the use of information technology (Venkatesh et al., 2003).

2.2 Empirical Review

2.2.1 Website Attribute and Customer Engagement

The attributes of a website include the characteristics that dictate its functionality, utility, and overall user experience, including the portal's layout, security, responsiveness, customization for particular services, and accessible interaction choices. Furthermore, layout architecture and functionality are crucial in determining how effectively customers can interact with the online portal since superior design guarantees the utility and accessibility of services, which ultimately impacts customer engagement (Shaikh & Karjaluoto, 2015; Alalwan et al., 2017). Moreover, the website's virtue of incorporating customization capabilities for personalized service promotes client retention via engagement, stimulating customers to use self-service technology banking (Aldas-Manzano et al., 2010). Next, the correlation between self-service banking attributes and customer engagement is established based on the factor of service quality. Consequently, the findings indicate that website features influence consumer satisfaction, thus improving customer engagement (De Leon et al., 2020). In addition, the research indicated that website features, including design, content quality, and usability, influence customer engagement by enhancing the overall experience and satisfaction levels among clients (Dangaiso et al., 2024). Next, the well-designed and user-friendly online portal enhances positive sentiment, prolonging website visits and increasing the frequency of self-service banking use, thus promoting client engagement (Khan & Alhumoudi, 2022). Based on the empirical review, the following research hypothesis has been developed:

H₁: Website attribute affects the customer engagement in self-service banking

2.2.2 Fulfillment and Customer Engagement

The word fulfillment in the context of digital banking service denotes the condition in which customer expectations are met or surpassed, enabling users to achieve the desired outcomes when engaging with self-service banking systems (Lin & Hsieh, 2011). Similarly, fulfillment is associated with client satisfaction, as it provides a positive sentiment and experience with digital banking services, eventually correlating with customer engagement and client retention (Parasuraman et al., 1988). The findings of the empirical research showed that the customized characteristics of the virtual banking system contribute to an increase in consumer engagement in the self-service banking application (Iqbal et al., 2018). Similarly, another research indicated a substantial beneficial correlation between service completion and customer happiness in self-service banking, from a case derived from Bangladesh (Gazi et al., 2024). Next, fulfillment plays a crucial role in expanding customer involvement by providing a transaction that is free of errors, establishing trustworthiness, and encouraging customer participation in self-service. It is the banking industry's advocacy that fast service is the key to establishing customer happiness, which ultimately leads to consumer participation (Parasuraman et al., 1988). Moreover, the systems that enable speedy service encourage customers to use the service more often. A higher level of client participation in the service is achieved via adoption and fast fulfillment (Hsu et al., 2015). Additionally, reliable service performance also gives opportunities for active participation in self-service banking (Cronin et al., 2000). Based on the review of empirical studies, the following hypothesis has been formulated:

H₂: Fulfillment affects customer engagement in self-service banking.

2.2.3 Privacy and Customer Engagement

The term "privacy" in the context of digital banking refers to the process of protecting different forms of information from being accessed by unauthorized parties, regulating against abuse, and allowing clients to engage in self-service technology-based banking practices (Belanger & Crossler, 2019). Moreover, the secrecy of the information is reflected in this privacy, which also reveals the openness of the service and makes it easier for consumers to organize their data preferences (Smith et al., 2021). Thus, a proper privacy policy that is connected with self-service banking led to an increase in client engagement, as shown by the finding (Kim et al., 2022). Similarly, the evidence on internet banking users and service privacy indicates a correlation with customer engagement, particularly in the context of Indonesian research, which highlights concerns about privacy related to websites, customer service,

and online interactions (Hendriyani et al., 2018). Next, the presence of a privacy system, in conjunction with the availability of self-service options, not only increases the level of confidence among its users but also encourages customer participation in the service. In addition, there is a correlation between the availability of greater privacy and the increased frequency of self-service banking, as well as the increased engagement of customers (Kim et al., 2022). Based on the review of the literature, the following hypothesis has been formulated:

H₃: Privacy affects customer engagement in self-service banking.

2.2.4 Security and Customer Engagement

The perceived security represents the cognitive assessment of self-banking services that concentrate on the safety of digital banking services. It is a process of keeping the system secure against illegal access and abuse of information (Candiwan & Rianda, 2024). Moreover, an atmosphere that encourages consumer involvement and adoption of digital banking is created by the security that is linked with self-banking services (Anouze & Alamro, 2020). In addition, the empirical evidence that was generated from several studies brought to light the fact that the security that is associated with self-service banking is positively related to customer engagement, which in turn increases the adoption of technology-based financial services and builds the trust of its customers (Kim et al., 2022). Thus, ensuring a better level of safety via the use of self-banking services boosts the satisfaction of the customer, creating an environment that encourages participation (Mbama & Ezepue, 2018). Therefore, the promotion of the mechanism for self-service security by financial institutions leads to an increase in successful sales in conjunction with interested customers (Singh et al., 2020). Based on the empirical review, the following hypothesis has been developed:

H₄: Security affects customer engagement in self-service banking.

2.2.5 Responsiveness and Customer Engagement

The responsiveness of self-service banking is a representation of its capacity to offer digital banking services in an efficient manner while also successfully satisfying the requirements of its customers (Parasuraman et al., 2005). A system for service performance that includes a speedy procedure, automated functioning, and rapid recovery of the service is included within it (Jun & Cai, 2001). Self-service banking, which reveals responsive technological services, has been shown to drive recurring engagement with a greater degree of customer satisfaction, reflecting the evidence from earlier empirical findings (Zeithaml et al., 2018). Moreover, it is possible to reduce the level of discontent among customers by providing them with self-service banking options that are both simple and quick to respond to their needs (Dabholkar, 2020). Similarly, a more successful engagement of customers with self-service banking may be achieved via the development of responsive self-service that allows for customized and tailored interaction (Lemon & Verhoef, 2016). Based on the review of the literature, the following hypothesis has been developed:

H₅: Responsiveness affects the customer engagement in self-service banking.

2.2.6 Ease of Use and Customer Engagement

The term "ease of use" in the context of technology-based financial services refers to the degree of independence from the effort required to utilize a system as compared to other banking services (Davis, 1989). The findings indicated that developing an efficient and user-friendly technology-based banking platform for transactions facilitates simplicity of use, ultimately fostering improved customer experiences and improving client engagement (Windasari et al., 2022). Additional research results from the previous study indicated that customer involvement and perceived usability positively enhance the customer experience, hence increasing engagement (Mbama & Ezepue, 2018). There is more evidence that the quality of digital banking is determined by how easy it is to use, which in turn encourages customer participation (Bilgihan et al., 2016; Jun & Cai, 2001; Rose et al., 2011). Moreover, the use of technology-based banking interfaces that are easy to understand and use has led to an increase in customer engagement (Venkatesh et al., 2012). Similarly, the streamlined and user-friendly platform, which is designed to be compatible with digital transaction systems, is associated with increased and consistent use of online banking services, which in turn increases the participation of clients (Alalwan et al., 2017). In addition, there is a favorable correlation between the perceived simplicity of use and the amount of involvement of customers in self-service banking (Weidlich & Bastiaens, 2017). These characteristics, when combined with self-service banking, provide an environment that encourages consumer engagement and retention of banking customers (Singh et al., 2020). Based on the review of previous research, the following hypothesis has been crafted:

H₆: Ease of use affects customer engagement in self-service banking.

2.2.7 Customer Engagement

Customer engagement is a word that takes into consideration the behavioral ties with cognitive and emotional feelings that are inclined to the client and service brand, and that show active participation via the use of recurrent service engagement (Brodie et al., 2011). In addition to this, it involves continuous contact that goes beyond the transactional relationship, which strengthens the connection with the services (Hollebeek et al., 2014). In the realm of online banking services, the engagement is driven by the experiences of tailored and individual sensations, an atmosphere of trust, and the value that is felt by customers. These factors lead to the enhancement of consumer involvement, as well as an increase in the degree of satisfaction among customers (Pansari & Kumar, 2017). On the other hand, it is generally accepted that customer engagement refers to the mechanism of interactions that an organization employs in order to connect with customers and candidates for customers (Van Doorn et al., 2010).

2.3 Conceptual Framework

The purpose of this research framework was to investigate the connection between the services offered by self-service technology banking services and the level of customer involvement, as well as the impact that self-service banking has on consumer engagement. Independent factors included website characteristics, fulfillment, privacy, security, responsiveness, and ease of use. Additionally, the dependent variable is customer engagement with the quality of service.

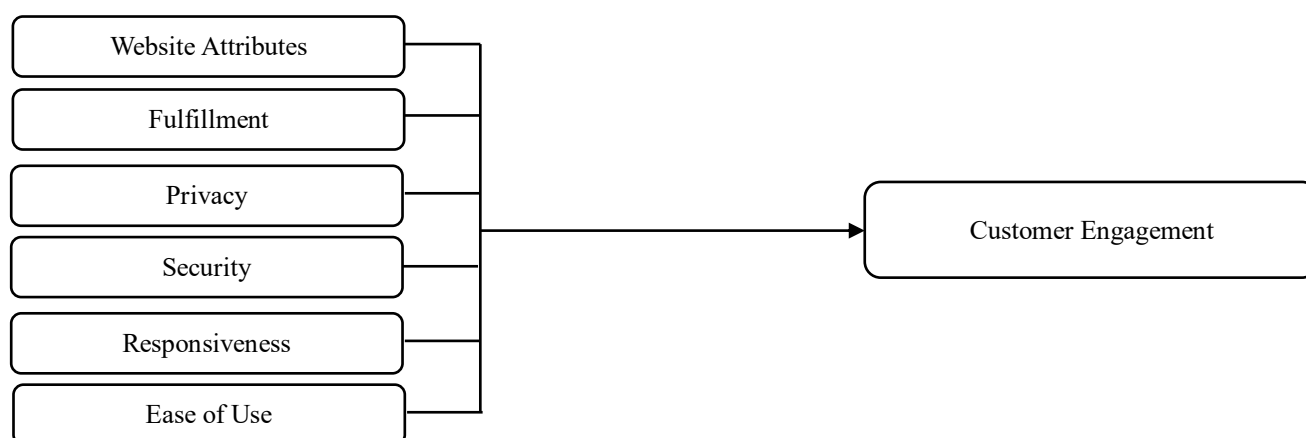


Figure 1
Conceptual framework

Source: Brodie et al. (2011); Abdurrahman (2024)

III. METHODOLOGY

The purpose of the research was to examine the effect of self-service technology banking on customer engagement among the users of digital banking services. Thus, this study adopted website attributes, fulfillment, privacy, security, responsiveness, and ease of use as independent variables. Similarly, customer engagement is the dependent variable of the study. The population of the study consisted of the clients using the technology-based banking services in Kathmandu, Nepal. Further, this research accumulated primary sources of cross-sectional data. Next, the study employed a purposive sampling technique. A structured questionnaire of 416 was disseminated to the target respondents, and a useful questionnaire of only 150 was received from the participants of the survey, representing merely 36.06 percent responses. The questionnaire was segmented into two dimensions, consisting first part as general background information of respondents and the second part of gathering opinions of participants using a five-point Likert scale. The five-point Likert scale, ranging from 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, to 5 = Strongly Agree, was adopted in the study. The construct website attribute was adopted from the study by Field (2018), consisting of four item statements. The sample items of the construct contain “The website is user-friendly, and the navigation system is well-designed” and “The website's functionality is well-equipped for banking purposes”. Similarly, the fulfillment construct was adopted from the study of George and Mallery (2019), comprising four statements. The sample statement represents “The digital banking promptly provides a confirmation of the requested service” and “It’s quick for me to log out of my account”. Moreover, the privacy construct was taken from the previous study by George and Mallery (2019), containing four item statements. The representative items contain “The digital banking service keeps my personal information safe” and “The IB service is secure and protected against fraud and hacking”. Next, the security construct was used from the study of George and Mallery (2019), comprising the four-item statements. The sample statements reflect “My financial operations are thoroughly safeguarded by the e-banking service” and “Internet banking servers accurately safeguard customer information”. Moreover, the construct

responsiveness was adopted from the study by George and Mallery (2019), containing its three-item statements. The sample item statement represents “Internet banking services are accessible 24 hours a day” and “E-Banking services provide immediate notifications on inquiries”. Additionally, the ease of use construct was derived from the study Abdurrahman (2024), comprising four item statements. The sample statements contain “The E-Banking tool lets me quickly complete any purchase” and “A straightforward method exists for transaction cancellation”. Finally, the customer engagement construct was adopted from the study by Brodie et al (2011), containing six-item statements. The sample statement comprises “I prefer using online banking over visiting the bank” and “I feel I made the proper choice by utilizing online banking services”.

This research used the JAMOV Version 2.6 and STATA 14 for the analysis of the data. The study tested Cronbach’s alpha for the study to assess internal consistency. Next, this research employed descriptive statistics containing frequency, mean, and standard deviation to reflect the general characteristics of the respondents who participated in the survey (Gravetter & Wallnau, 2020). Similarly, the correlation analysis conducted in the study assesses the degree of strength and direction of the relationship between the variables (Field, 2018). Moreover, the regression analysis took place in the study to examine the effect of independent variables on dependent variables (Gravetter & Wallnau, 2020). Thus, the following table manifests the reliability of Cronbach’s alpha for the study:

Table 1
Reliability test

Variables	Items	Cronbach's Alpha
Website	4	0.941
Fulfillment	4	0.935
Privacy	4	0.936
Security	4	0.943
Responsiveness	4	0.930
Ease of Use	4	0.933
Customer Engagement	6	0.932

Table 1 presents the reliability assessment of study variables using Cronbach’s alpha. Consequently, Cronbach's alpha evaluates the internal consistency of each item within the structure. It assesses the degree of association among the item assertions. In addition, a higher Cronbach’s alpha value indicates more consistency among the item statements. The Cronbach’s alpha values for website characteristics, fulfillment, privacy, security, responsiveness, efficiency, simplicity of use, and customer involvement with quality of service were 0.941, 0.935, 0.936, 0.943, 0.930, and 0.932, respectively. The Cronbach's alpha score in this research exceeds 0.70, indicating enhanced dependability (George & Mallery, 2019).

3.1 Model Specification

The model specification used in this study elucidates the statistical framework, including the research variables, which underpins the evaluation and determination of the relationship between the variables. This model specification provides the basis for the research framework (Wooldridge, 2020). This research used the independent variables of website qualities, satisfaction, privacy, security, responsiveness, efficiency, and simplicity of use. Likewise, client involvement is the dependent variable. Consequently, this research introduces the following model for examination:

$$CE = \alpha + \beta_1 WBAT + \beta_2 FULM + \beta_3 PVC + \beta_4 SEC + \beta_5 RSP + \beta_5 EOU + e_i \dots\dots\dots (1)$$

Where,

CE = Customer Engagement
WBAT = Website Attributes
FULM = Fulfillment
PVC = Privacy
SEC = Security
RSP = Responsiveness
EOU = Ease of Use

Thus, this model depicts the path for the study, facilitating the examination of the association and influence between the research variables.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Profile of Respondent

Table 2 of the responder profile has 150 individuals. Out of the total participants, 92 (61.20 percent) were under 25. In a comparable manner, the cohort of participants aged 26 to 35 years included 49 individuals (32.7 percent). The age group of responders above 36 years consisted of 9 individuals, accounting for 6 percent participants. Furthermore, the male responders include 66 individuals, representing 44 percent, as survey participants. The female cohort of participants included 84 individuals, accounting for 56.4 percent. The educational background of participants below the upper secondary level (10+2) is 23 (15.30 percent), while those at the bachelor's level comprise 86 (57.30 percent). Among the responders, 30 individuals had a master's degree, constituting 20 percent. Furthermore, the respondents with a PhD constitute 11 individuals (7.30 percent).

Table 2

Profile of respondents

Background Information	Classification	Frequency	Percentage
Age group of respondents	Less than 25 years	92	61.2
	26-35 years	49	32.7
Gender of respondents	Male	66	44.0
	Female	84	56.0
Educational level of respondents	Below 10+2	23	15.3
	Bachelor's	86	57.3
	Mater's	30	20.0
	PhD	11	07.3
Level of income of respondents	Below 20000	33	22,0
	21000-40000	23	15.3
	41000-60000	18	12.0
	61000-80000	52	34.7
	Above 80000	24	16.0
Usage of self-service banking	Less than a month	38	25.3
	Less than a year	33	22.0
	Between 1 and 2 years	38	25.3
	More than 5 years	41	27.3
Frequencies of usage of self-service banking	Everyday	48	32.0
	3+ times a week	20	13.3
	Twice a week	21	14.0
	Once a week	56	37.3
	Never	05	03.3
	Total	150	100

Table 2 indicates that 33 survey participants (22 percent) had an income below 20,000, while 23 participants (15.30 percent) had an income ranging from 21,000 to 40,000. Likewise, the income bracket of respondents earning between 41,000 and 60,000 included 18 individuals (12 percent). The income group of participants earning between 61,000 and 80,000 comprises 52 individuals, accounting for 34.70 percent. Furthermore, participants with an income above 80,000 include 24 individuals or 16 percent. Furthermore, the use of self-service banking for less than one month among the respondents is represented by 38 individuals (25.30 percent), while those with less than one year of account status comprise 33 individuals (22 percent). The use of self-service banking among individuals with 1 to 2 years of status accounts for 38 (25.30 percent). The utilization status of self-service banking, with over five years of expertise, indicates 41 individuals, or 27.30 percent. Moreover, the frequency of self-service banking use among customers, indicating daily utilization, was 48 (32 percent). Likewise, the users' frequency of around three times each week accounts for 20 individuals or 13.30 percent. The status of holding twice a week is represented by 21 (14 percent), while utilizing once a week is represented by 56 (37.30 percent). Customers indicating no use of self-banking services constitute 5 individuals (3.3 percent).

4.1.2 Correlation Analysis

The correlation analysis conducted for this study attempts to assess the direction and strength of the relationship between the study variables. The independent variables employed in the study are website attributes, fulfillment, privacy, security, responsiveness, and ease of use. Similarly, the dependent variable adopted in the study is customer engagement. The following correlation table shows the association between the study variables:

Table 3

Correlation matrix

Variables	Mean	SD	WBAT	FULM	PVC	SEC	RSP	EOU	CE
WBAT	3.30	0.206	1.000						
FULM	3.40	0.949	0.077	1.000					
PVC	3.52	1.061	0.061	0.734***	1.000				
SEC	3.17	0.981	0.081	0.632***	0.636***	1.000			
RSP	3.49	1.063	0.034	0.771***	0.761***	0.694***	1.000		
EOU	3.35	1.105	0.071	0.720***	0.746***	0.660***	0.812***	1.000	
CE	3.50	1.059	0.079	0.725***	0.728***	0.668***	0.813***	0.782***	1.000

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, (Note: WBAT = Website attribute, FULM = Fulfillment, PVC = Privacy, SEC = Security, RSP = Responsiveness, EOU = Ease of use, & CE = Customer engagement)

Table 3 illustrates the strength of the correlation between the variables. The correlation analysis indicates a positive link between website features and satisfaction ($r = 0.079$). An increase in website characteristics correlates with a heightened degree of consumer engagement in a favorable manner. The correlation data indicate a favorable association between fulfillment and customer engagement ($r = 0.725$). As fulfillment increases, it enhances customer engagement levels. Likewise, the results indicate that privacy has a good and beneficial correlation with engagement ($r = 0.728$). It also demonstrates that enhancements in privacy result in increased consumer engagement. The results indicate a favorable correlation between security and consumer engagement ($r = 0.668$). It demonstrates that an improvement in security levels concurrently enhances consumer engagement. The responsiveness is favorably correlated with engagement ($r = 0.813$). As response grows, customer engagement also rises. The efficiency and convenience of use are favorably correlated with customer engagement ($r = 0.782$). The improvement in usability enhances consumer engagement.

4.1.3 Regression Analysis

The regression analysis conducted in the study attempts to examine the effect of the independent variables on the dependent variable. Thus, the study embraced website attributes (WBAT), fulfillment (FULM), privacy (PVC), security (SEC), responsiveness (RSP), and ease of use (EOU) as independent variables. Similarly, the study used customer engagement (CE) as a dependent variable. The following table shows the results of the regression analysis:

Table 4

Regression coefficient

Model	Intercept	WBAT	FULM	PVC	SEC	RSP	EOU	F Value	SEE	Adj. Square	R-Square
1	3.245*** (55.7)	0.0154 (0.97)						0.94	0.20571	-0.0004	
2	1.119*** (6.02)		0.650** * (12.8)					163.75	0.65628	0.5221	
3	0.962*** (4.66)			0.729** * (12.92)				166.97	0.72955	0.5269	
4	1.005*** (4.84)				0.619** * (10.93)			119.37	0.73252	0.4427	
5	0.629*** (3.58)					0.816** * (17.01)		289.4	0.62018	0.6594	
6	0.495* (2.53)						0.816** * (15.28)	233.45	0.69033	0.6094	
7	3.235***	0.00874	0.00974					0.52	0.20633	-0.0064	

	(49.62)	(0.34)	(0.42)							
8	3.236*** (48.8)	-0.35 (4.19)	0.0108 (0.42)					0.35	0.20702	-0.0133
9	3.231*** (47.56)	0.00777 (0.26)	0.00756 (0.28)		0.01 (0.4)			0.3	0.20762	-0.0191
10	3.229*** (47.53)	0.0168 (0.55)	0.0203 (0.68)	0.00202 (0.07)	0.0155 (0.61)			0.44	0.20762	-0.0191
11	3.230** (47.34)	0.0158 (0.51)	0.0176 (0.57)	2.09E-05 (0.00)	0.0145 (0.57)		0.0102 (0.34)	0.38	0.20826	-0.0254
12	3.243*** (54.32)	0.00423 (0.17)					0.012 (0.47)	0.48	0.20639	-0.007
13	0.951*** (5.35)	0.339** * (4.63)				0.373** * (4.88)		103.9	0.61518	0.5801
14	3.234*** (51.44)	0.0088 (0.41)			0.0107 (0.46)			0.57	0.20626	-0.0058
15	3.244*** (51.82)	0.0145 (0.62)		0.00132 (0.06)				0.47	0.2064	-0.0072
16	0.951*** (5.35)		0.339** * (4.63)				0.373** * (4.88)	103.9	0.61518	0.5801
17	0.818*** (4.72)		0.259** (3.32)			0.479** * (6.15)		121.13	0.58733	0.6172
18	0.859*** (4.47)		0.490** * (7.47)		0.259** * (3.66)			95.43	0.63041	0.559
19	0.746*** (3.87)			0.436** * (5.50)			0.373** * (4.51)	115.08	0.66669	0.6049
20	0.746*** (3.87)			0.436** * (5.50)		0.373** * (4.51)		117.18	0.66301	0.6093
21	0.746*** (3.87)				0.436** * (5.50)		0.373** * (4.51)	117.18	0.66301	0.6093

t statistics in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, Dependent variable: Customer Engagement

(Note: WBAT = Website attribute, FULM = Fulfillment, PVC = Privacy, SEC = Security, RSP = Responsiveness, EOU = Ease of use, & CE = Customer engagement)

Table 4 presents the regression coefficient for evaluating the impact of predators on the dependent variables. The regression coefficient for the qualities of the website has a favorable impact on user engagement ($\beta = 0.0154$, t value = 0.97). It means that as the quality of a website improves, client engagement rises correspondingly. Therefore, an improvement in website characteristics by one unit results in a 0.0154 unit difference in engagement. Similarly, the beta value for fulfillment indicates a favorable effect on customer engagement ($\beta = 0.650$, t value = 12.8). It shows that the increase in fulfillment enhances consumer involvement in self-service banking. Thus, the modification in fulfillment by one unit results in a 0.650 unit alteration in client engagement. Moreover, the beta coefficient for privacy has revealed a favorable impact on customer engagement ($\beta = 0.729$, t value = 12.920), depicting that privacy correlates with heightened consumer engagement in self-service banking. Therefore, a one-unit improvement in privacy results in a 0.729-unit change in the level of customer engagement in digital services.

Furthermore, the beta coefficient for security indicates a significant impact on customer involvement in internet banking services ($\beta = 0.619$, t value = 10.93). It means that as the level of security is established, it fosters the degree of customer engagement in self-service banking. As a one-unit change in the security level of the services results in an alteration in customer engagement by 0.619 units. In addition, the beta coefficient for responsiveness indicates a positive effect on customer engagement ($\beta = 0.816$, t value = 17.01). It means increased responsiveness correlates with heightened customer involvement in technology-based banking services. Thus, a one-unit rise in responsiveness results in a 0.816-unit increase in customer engagement. Ultimately, the simplicity of usage has a beneficial impact on customer engagement ($\beta = 0.816$, t value = 15.28). It means that as usability improves, the customer involvement level rises accordingly. A one-unit alteration in ease of use results in a 0.816-unit difference in customer involvement.

Table 5
Collinearity statistics

Variables	VIF	Tolerance
Website Attribute	1.01	0.986
Fulfillment	2.94	0.340
Privacy	2.99	0.334
Security	2.13	0.469
Responsiveness	4.22	0.237
Ease of Use	3.47	0.288

Table 5 presents the collinearity assessment using the Variance Inflation Factor (VIF), illustrating the relationships among the predictor variables. The Variance Inflation Factor (VIF) for the website attribute is 1.01, for fulfillment, it is 2.94, and for privacy, it is 2.99. The VIF for security is 2.13, for responsiveness is 4.22, and for simplicity of use is 3.47. Consequently, all VIF values remained below 0.5, showing the absence of collinearity. This shows that predictor variables are not significantly associated, resulting in trustworthy estimations of regression coefficients (Kutner et al., 2004). Similarly, the tolerance test score signifies the inverse of the Variance Inflation Factor (VIF), and a tolerance score over 0.1 is necessary to show credible estimations (O'Brien, 2007). Consequently, all tolerance ratings in the test exceeded 0.1, showing the criterion for dependable estimations.

Table 6
Summary of hypotheses

Hypotheses	Results
H ₁ : Website attribute affects the customer engagement in self-service banking	Accepted
H ₂ : Fulfillment affects customer engagement in self-service banking.	Accepted
H ₃ : Privacy affects customer engagement in self-service banking.	Accepted
H ₄ : Security affects customer engagement in self-service banking.	Accepted
H ₅ : Responsiveness affects the customer engagement in self-service banking.	Accepted
H ₆ : Ease of use affects customer engagement in self-service banking.	Accepted

Table 6 shows the summary of the research hypotheses. The first research hypothesis, H₁: Website attributes affect customer engagement in self-service banking, is accepted as it found remarkable results. Similarly, the research hypothesis, the second H₂: Fulfillment affects customer engagement in self-service banking, is also accepted as its findings revealed statistically significant results. Next, hypothesis three, H₃: Privacy affects customer engagement in self-service banking, is accepted based on its empirical evidence. Moreover, the research hypothesis H₄: Security affects customer engagement in self-service banking is also accepted, as its results depicted considerable evidence. Additionally, hypothesis H₅: Responsiveness affects customer engagement in self-service banking is confirmed with theory, as its results were found significant. Finally, the research hypothesis H₆: Ease of use affects customer engagement in self-service banking is accepted based on its significant findings.

4.2 Discussion

The primary objective of the study was to evaluate the impact of self-service banking on customer engagement, using independent factors such as website attributes, fulfillment, privacy, security, responsiveness, and simplicity of use, alongside the dependent variable of customer engagement. This research used data gathered from self-service banking customers in Kathmandu, Nepal. The study's findings indicated a favorable and substantial impact of website attributes on consumer engagement in self-service banking. This indicates that an enhancement in the website quality of self-service banking improves user involvement in digital banking. This finding is in line with the previous findings, which state that website elements improve customer engagement by increasing consumer satisfaction (De Leon et al., 2020). The study also found that website design, content quality, and usability improve consumer happiness and engagement (Dangaiso et al., 2024). Next, the well-designed and user-friendly online portal boosts a positive attitude, keeping website visitors longer and encouraging self-service banking usage, boosting customer engagement (Khan & Alhumoudi, 2022). Similarly, the results indicate a substantial impact of fulfillment on consumer engagement in self-service banking. It illustrates that satisfaction increases via self-service banking, hence enhancing client involvement in digital banking services. This finding is in line with the findings of the previous research stating that the banking sector believes speedy service increases customer pleasure and involvement (Parasuraman et al., 1988). Fast-service systems also stimulate repeat usage. Fast fulfillment and adoption increase customer engagement (Hsu et al., 2015). Reliable service allows self-service banking (Cronin et al., 2000).

Moreover, the findings manifested a positive and significant effect of privacy on customer engagement in self-service banking in Kathmandu. It demonstrates that as the level of privacy develops along with online banking, it promotes the involvement of customers. This finding is in the same direction as the findings of the previous research, depicting that a privacy system and self-service alternatives boost user trust and stimulate consumer engagement. Privacy also increases self-service banking and client engagement (Kim et al., 2022). Furthermore, the findings demonstrate a favorable and considerable impact of security on consumer engagement. It indicates that preserving safety and security, alongside self-service banking, enhances user engagement. This finding is compatible with the findings of the previous research, reflecting that self-banking services improve customer satisfaction and promote participation by improving safety. Thus, financial institutions that provide self-service security enhance revenues and attract clients (Singh et al., 2020). Next, the results indicate a positive and substantial impact of responsiveness on customer engagement, suggesting that an increase in responsiveness within self-service banking enhances the attraction of customers to digital banking. This finding is consistent with the findings of the previous research, revealing that responsive technology services like self-service technology banking increase consumer happiness and recurrent engagement (Zeithaml et al., 2018). Self-service banking that is straightforward and fast may also lessen consumer dissatisfaction (Dabholkar, 2020). Similar to responsive self-service, personalized and targeted interaction may improve client engagement with self-service banking (Lemon & Verhoef, 2016). Finally, the outcome demonstrated that there is a favorable and substantial influence that ease of use has on the level of consumer involvement. Based on this evidence, the percentage of customers who use digital banking services increases when self-service banking is combined with the ability to personalize digital banking and make it easier to use. This finding is in line with the findings of the previous research, depicting that a simplified, user-friendly platform that is compatible with digital transaction systems enhances and maintains online banking usage, which increases customer engagement (Alalwan et al., 2017). The perceived ease of use also affects client participation in self-service banking (Weidlich & Bastiaens, 2017). These traits and self-service banking foster client engagement and retention (Singh et al., 2020).

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusions

This study focused on evaluating the impact of self-service technology banking on consumer engagement in Kathmandu, Nepal. The research mainly emphasized website attributes, fulfillment, privacy, security, responsiveness, and ease of use associated with the digital banking system and analyzed how these influence users' engagement with self-service technology banking services among the banking clients in Kathmandu, Nepal. The study reflected the supportive contribution of these technology-based banking services in enhancing client engagement. In addition, this research used descriptive statistics such as frequency, percentage, mean, and standard deviation to illustrate the overall features of the respondents' background information. The relationship between the variables was examined by correlation analysis. The result was derived via regression analysis to assess the impact of self-service banking on consumer engagement. The study's findings indicated a favorable and substantial impact of website attributes on consumer engagement in self-service banking. Enhancing the online gateway for digital banking encourages consumers to engage more actively with digital banking services. The banking industry providing digital services must enhance the quality of website features to attract consumers for self-service banking. The results indicated a substantial and favorable impact of fulfillment on customer engagement. This indicates that aligning consumer demands with technology-based services fosters a profound relationship via customer engagement. Consequently, it can be stated that digital banking, by providing online banking services that fulfill customer expectations, encourages clients to increase their engagement in online banking operations. Consequently, banks and financial organizations must prioritize this aspect of digital services. The findings from this study indicated a substantial and favorable impact of privacy on customer engagement. The enhancement of privacy policies for self-service digital transactions establishes a framework that encourages customer participation in the electronic banking system.

The banking industry, offering digitalized and automated services, must ensure the confidentiality of all transactions and user data related to these services to foster consumer confidence and engagement. The findings of this research demonstrated a favorable and considerable impact of security on consumer engagement. An increase in the security associated with online banking services boosts consumer engagement in virtual transactions. It may be inferred that banks must enhance security services and the online transaction system to attract, retain, and engage clients with the self-service banking system. The results indicated a favorable and substantial impact of responsiveness on consumer engagement in self-service banking. An increase in responsiveness enhances client engagement in self-service banking. The banking industry with digital operations must provide prompt responses amid complications encountered by clients in self-service banking systems. The results indicated a substantial and favorable impact of usability on customer engagement in self-service banking. The simplicity of use of digital banking encourages clients to engage in online banking operations. Consequently, it can be inferred that the banking

industry using digital platforms should prioritize user-friendly mechanisms in their services to attract, retain, and provide a comfortable environment for self-service banking, thereby enhancing consumer engagement.

5.2 Recommendations

This research's results enhance current theory by providing evidence and may serve as a standard for financial institutions in adopting self-service banking focused on consumer interaction. Moreover, the findings of this research may assist policymakers in considering the dynamic aspects that influence consumer involvement in self-service banking systems. Therefore, the concerned banking industries need to embrace compatible technology-based banking services to spread awareness, enhance customer engagement, and retain valuable clients. Additionally, adequate focus of the regulatory body is essential to formulate policy, implement, and monitor technology-based banking transactions to systematize it, which ultimately enhances client engagement.

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The role of the internal control system on the financial performance of Umurenge SACCO Bwishyura of Karongi District, Rwanda

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ABSTRACT

This research sought to analyse the role of internal control on the financial performance of one financial institution, namely Umurenge Bwishyura Savings and Credit Cooperative Organization, referred to as Bwishyura SACCO in this research. It specifically sought to assess the relationship between the control environment and the financial performance of Bwishyura SACCO, examine the relationship between control activities and the financial performance of Bwishyura SACCO, investigate the relationship between risk assessment and the financial performance of Bwishyura SACCO, and find out the role of internal control on the financial performance of Bwishyura SACCO. It was descriptive in nature. It was guided by two theories, namely the “Agency Theory (AT)” and the “Stakeholder Theory (ST)”. A quantitative approach was used for collecting, analysing and presenting data. The target population of this research comprised 19 individuals, including 9 staff of Bwishyura SACCO and 10 members of its board of directors. The study sample size included 19 individuals of Bwishyura SACCO. A universal sampling technique was employed in the selection of respondents. Questionnaires were used to collect primary data, whereas a documentary review was utilised for gathering the secondary data of this study. All data were recorded and coded into SPSS software. This research found out that a high and positive relationship exists between the control environment and the financial performance of the SACCO, which is equal to 0.715**, and the sig. is 0.000 (less than 0.01). In addition, this research identified the existence of a high and positive relationship between control activities and the financial performance of this SACCO. Moreover, the study depicted the presence of a high and positive correlation between risk assessment and the financial performance of Bwishyura SACCO. Furthermore, the results indicated that internal control plays a key role in the financial performance of Bwishyura SACCO. This research also identified a coefficient correlation of $R=0.898$. This means that there exists a positive and strong relationship between internal control and the financial performance of Bwishyura SACCO. However, 14.2% of the variation in financial performance of this SACCO is elucidated by other reasons which are not captured by this model. Finally, this study concludes that internal control is a critical factor influencing the profitability of Bwishyura SACCO, enhancing its financial performance by mitigating risks as well as ensuring its operational efficiency. The study, therefore, recommends that this SACCO should strengthen its risk assessment processes to efficiently detect, evaluate, and moderate risks to always help it protect its assets, reduce losses, and sustain its financial performance.

Keywords: Agency Theory (AT), Financial Institutions, Financial Performance, Internal Control System, Stakeholder Theory (ST), Bwishyura SACCO



I. INTRODUCTION

Nowadays, the use of internal control in leading and avoiding fraud of any financial organizational resources to reach its goals is inevitable (Rafindadi & Olanrewaju, 2019). Financial institutions worldwide operate under a set of policies, rules and guidelines that guide them toward achieving both financial and non-financial objectives. While some of these rules are established internally by the bank's management, others are introduced through external governing laws. The regulations developed inside the Banking organizations as well as other organizations are known as internal controls (Odhiambo, 2022). Banks have heavily invested in enhancing the efficiency of their internal control systems to guarantee their financial, operational, and compliance goals are observed (Oyedokun & Felejaye, 2022).

Internal controls allow Chinese financial institutions to enhance resource allocation and boost financial performance. By implementing effective control systems, resources can be directed to areas that yield the highest returns, thereby maximizing profitability. Additionally, internal controls ensure that Chinese financial institutions adhere to regulatory requirements, which is essential for protecting the stability and integrity of the financial domain (Cheng & Yang, 2020).

Internal controls are essential for protecting assets, managing risks, ensuring compliance, and improving operational efficiency in South African financial institutions. Their successful implementation enhances the financial performance of these institutions by building trust, reducing risks, and maximizing resource use (Britnell, 2017). Operating in a highly regulated environment, financial institutions in South Africa rely on effective internal controls to conform with the industry standards, appropriate laws and regulations. Failure to conform to those guidelines may result in charges, legal penalties, reputational harm, and financial losses (Garcia & Martinez, 2020).

The crisis in the Nigerian financial sector can be credited to several factors, including a high volume of non-performing loans, an absence of transparency, and inadequate capital (Ewa & Udoayang, 2012). Additionally, weak internal controls and ineffective external audits significantly contributed to the sector's troubles. Despite reforms in the Nigerian banking sector, there has been a breakdown in internal control systems, leading to regulatory failures and poor corporate governance. Consequently, the ineffectiveness of internal controls has resulted in financial instability and poor performance within the banking system (Oyedokun & Felejaye, 2022).

Financial institutions in Uganda are required to follow various regulatory standards and guidelines. Internal controls are essential for maintaining compliance, as they help avert fines and legal issues. Non-compliance may cause penalties, reduce reputation, and the loss of licenses, all of which can significantly affect financial performance (Etengu & Amony, 2016). Internal controls have become critically important in Kenyan banks today, as they serve as a cornerstone of an effective accounting system. The growing volatility in international markets and the demand for higher shareholder earnings have driven management to strengthen internal control mechanisms, enhancing their competitive advantage (Muthusi, 2017). This is especially crucial for banks, where weak internal controls are a major contributor to poor performance, primarily due to undetected fraud. From a management perspective, it is critical to implement robust internal control systems to minimize the risk of fraud. It is an integral and dynamic process that must gradually adapt to the evolving challenges of the modern banking industry (Haasan, 2021).

The Rwandan government began acknowledging the significance of the internal audit role, prompting the establishment of rules and regulations governing internal controls. As a crucial element of internal controls, internal audit was recognized as a key contributor to enhancing corporate governance (Mugabo et al., 2022). Therefore, the management of banks should seek and understand the role of the internal controls in their organizations. Weak internal controls in a bank can lead to various negative outcomes, such as heightened fraud risk, financial reporting errors, operational inefficiencies, compliance violations, asset loss, reputational harm, reduced investor confidence, and regulatory challenges (Irudukunda & Kamande, 2022). These weaknesses in the internal control system are primary factors contributing to the poor performance and potential failure of financial institutions, as they adversely impact their operations. According to some researches, there exists a positive relationship between internal control mechanisms and the financial performance of financial institutions. The present research seeks to assess the role of internal control in financial performance of financial establishments in Rwanda with a particular reference to Umurenge SACCO Bwishyura.

1.1 Statement of the Problem

Despite having internal controls in place, irregularities and errors can still go undetected for some time, leading to unreliable and inaccurate accounting records (Odhiambo, 2022). As well, there may be issues where resources are not used for their intended purposes, increasing the risk of misuse of organizational funds and resources. This can result in inefficient operations, unreliable financial and operational reports, inadequate protection of assets against theft, loss, and misuse, non-compliance with laws, regulations and existing rules, ultimately, failure to achieve intended goals and objectives, which negatively impacts financial performance (Haasan, 2021).

Due to weak internal control system, financial institutions especially, Umurenge SACCOs, have recorded incessant cases of errors and fraud, embezzlement, unauthorized debit, providing loans to customers who do not meet



the requirements and other malpractices, these situations affected negatively the financial performance of them (Niyonsenga, 2017). Although internal control is crucial for financial institutions, there is a lack of concrete and tangible evidence demonstrating its direct impact on improved financial performance. The specific influence of internal control on the financial performance of Umurenge SACCO Bwishyura remains unclear, and there is insufficient information on how the internal control impacts the Bwishyura SACCO's financial performance. To the researcher's knowledge, there are few studies that have explored the effect of internal control on the financial performance of banking organizations within the context of Rwanda. Hence, this study tries to fill this empirical gap by assessing the impact of internal control on financial performance of financial institutions centering to Umurenge SACCO Bwishyura.

1.2 Research Objectives

- i. To assess the relationship between control environment and financial performance of Bwishyura SACCO;
- ii. To examine the relationship between control activities and financial performance of Bwishyura SACCO;
- iii. To investigate the relationship between risk assessment and financial performance of Bwishyura SACCO;
- iv. To find out the role of internal control on financial performance of Bwishyura SACCO.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Agency Theory (AT)

The Agency Theory (AT) was established by Michael C. Jensen (Jensen, 1986). The purpose of the AT is to resolve and clarify issues arising in agency relationships that involve the agent and principal (Jensen, 1986). Usually, the relationship is between shareholders (referred to as principals), and the institutional executive committee who are the agents. The agents represent the principal in a specific business deals and they are supposed to denote the best benefits of the principal regardless of personal interest (Adams, 1994). However, the above-mentioned agents have been suspected to work for own interest than being on the behalf of the principals (Eisenhardt, 1989). The AT, therefore, suggests that a firm's value cannot be exploited unless appropriate motivation or suitable monitoring are effectively enough to maintain strong managers, and prevent them from using their decisions to exploit their own benefits.

The relevance of the AT to this study is that it can help the managers of financial institutions to know how they can act on the behalf of shareholders rather than their own interest, by knowing this they can do their best to carry out control environment, control activities and risk assessment in an orderly and efficient manner. As a result, this may help to successfully improve financial performance related to the Return on Asset (ROA), Return on Equity (ROE) and Net Profit Margin (NPM), and maximize the interests of the shareholders (Jensen, 1986).

2.1.2 Stakeholder Theory (ST)

Edward Freeman's stakeholder theory was developed in 1984 (Freeman, 1984). He is often referred to as the father of stakeholder theory. He argued that business owners have to always consider all stakeholders' interest, not just in decisions making. Freeman proposed that organizations should seek to create value for all stakeholders, rather than solely focusing on maximizing profits for shareholders (Freeman, 1984). The ST recommends that the goal of a business would be to generate as much value as possible for shareholders. For succeeding and being long term sustainable, managers should preserve the customers' interests, employees, suppliers, moneylenders, communities, government and stakeholders associated, and going in the same way. An organization should not only mind the stockholders in their institution, but also other shareholders, who do business with it and also their competitors (Freeman, 1984). This theory is the idea that every stakeholder is a key to the success of a bank, and understanding where their interests are aligned, is the institutional man agent responsibility. The ST states that the managers of a business must not only consider the needs of shareholders and manager, but for all stakeholders (Klimczak, 2007).

The ST is efficient to this study as it stipulates a framework for designing internal control systems that considers the interests of all stakeholders, not only shareholders, during decisions making process of a financial organization. By incorporating stakeholder perspectives into control mechanisms, organizations can enhance control environment, control activities and risk assessment and achieve sustainable performance, growth, and prosperity.

2.2 Empirical Review

2.2.1 Relationship between Control Environment and Financial Performance of Financial Institutions

Control environment sets the quality of an organization and influences the overall control consciousness of its individuals. In financial institutions, this component encompasses factors including the integrity, ethical values, and competence of the board of directors and management (Mehta, 2024). This means that financial institutions must establish a strong control environment by promoting ethical behavior, fostering a culture of compliance, and providing adequate training and resources to employees. Also, the control environment incorporates the introduction of policies and procedures that guide operations and decision-making processes within financial institutions (Odhiambo, 2022).



The control environment is the attitude towards internal control and control consciousness introduced and sustained by the managerial team and the staff of an institution (Munene, 2019).

The control environment has a central use in the achievement of the entire organization, how the control environment impacts the design and operation of an organizational internal control measures. It shows how skilled, moral and honest the organizational management is (Muhunyo & Jagongo, 2018). It starts with the tone set by the board of directors and the top management. In financial institutions, senior management and the board play a critical role in establishing and promoting a culture of integrity, accountability, and ethical behavior. Their commitment to upholding high ethical standards and complying with laws and regulations sets the tone for the entire organization (Aitaru, 2017). Therefore, financial institutions should promote a culture of ethical behavior and integrity throughout the organization. This encompasses adopting an environment whereby the staff recognizes the role of honesty, fairness, and transparency in all aspects of their work. Ethical values should be embedded in the financial institution's policies, procedures, and decision-making processes, and employees should be encouraged to report unethical behavior or suspected violations of internal controls (Adebisi, 2018).

The control environment should include mechanisms to ensure that employees possess the needed knowledge, skills, and resources to perform their duties effectively. Financial institutions should invest in training and development programs to enhance employees' competence in areas such as risk management, compliance, and internal controls. Additionally, employees should be held accountable for their actions, with clear expectations regarding performance and conduct (Khamis, 2019). The control environment should promote a mindset of continuous improvement and adaptability. Financial institutions should regularly evaluate the effectiveness of their internal controls, identify areas for enhancement or refinement, and implement changes as necessary to address evolving risks and challenges. This requires a proactive approach to risk management and a willingness to embrace change to maintain the effectiveness of the control environment over time (Olumbe, 2018).

The control environment sets the tone for the entire internal control system and significantly influences the organization's ability to achieve its objectives, mitigate risks, and maintain compliance with laws and regulations. By promoting a culture of integrity, accountability, and continuous improvement, banks can establish a robust control environment that supports sound governance and sustainable business success (Abdullahi & Muturi, 2020).

2.2.2 Relationship between Control Activities and Financial Performance of Financial Institutions

Control activities include the practices, policies, and procedures established by management to mitigate risks and achieve specific objectives. In financial institutions, control activities encompass many activities aimed at ensuring the reliability of financial transactions, safeguarding resources, and complying with existing guidelines (Abdullahi & Muturi, 2020). Samples of control activities in financial institutions are the sharing of duties, approval processes and authorization, physical checking over assets, reconciliation of accounts, and monitoring of transactions for unusual or suspicious activities (Oyedokun & Felejaye, 2022). Control activities include mechanisms, policies and procedures set to make sure orders of the management are effectively implemented (Aitaru, 2017). Control activities are instruments that are manually and automated to avoid or minimize the risks that can hinder success of the purpose and mission the organizational (Muraleetharan, 2013).

One of the key control activities in financial institutions is the segregation of duties, which involves sharing duties among different personnel to prevent errors and fraud. By segregating duties, financial institutions reduce the risk of collusion and ensure that no single individual can initiate and complete transactions without mistakes (Ngari, 2017). Control activities in financial institutions often include formal authorization and approval processes for various transactions and activities. This ensures that all transactions are conducted in accordance with established policies and limits. For example, large withdrawals or transfers of funds may require dual authorization to prevent unauthorized transactions. Financial institutions maintain physical controls over assets to prevent theft, loss, or misuse. Physical controls may include security measures such as locked vaults, access controls, surveillance cameras, and security personnel. Additionally, financial institutions may implement procedures for the periodic counting and reconciliation of physical assets to detect discrepancies and ensure their accuracy and completeness (Munene, 2019).

With the increasing reliance on technology in banking operations, control activities also include information technology (IT) controls to safeguard data, systems, and networks from security breaches, unauthorized access, and data manipulation. Control of activities are critical for the establishment and maintenance of efficient internal control systems in financial institutions, they may help financial institutions can mitigate risks, prevent fraud, ensure compliance, and safeguard assets, thereby contributing to the overall integrity and reliability of their operations (Ewa & Udoayang, 2017).

2.2.3 Correlation between Assessment of Risk and Financial Performance of Financial Institutions

The first step in risk assessment is to identify the various types of risks that the financial institution may face. In banking, common risks like market risk, liquidity risk, credit risk, reputational risk, compliance risk, and operational risk must be taken into consideration. According to Mazur (2018), credit risk is the one that arises from the potential for debtors to defaulting on loans, whereas market risk affects the instabilities in interest rates, exchange rates, and asset



cost. Liquidity risk, on the other hand, is all about the inability to meet short-term requirements, while operational risk relates to the risk of deficiencies caused by internal processes, systems, or human error. Finally, the compliance risk is the risk of non-compliance with industry standards, laws, and regulations, while reputational risk arises from negative publicity or damage to the bank's reputation (Mazur, 2018; Garcia & Martinez, 2020).

Once risks have been identified, they need to be assessed for their likelihood and possible impact on the bank's goals. This involves quantifying and prioritizing risks based on factors such as probability, severity, velocity, and persistence. Risk assessment helps to compare the effects of risk analysis with risk criteria to decide if the risk and its extent are acceptable or bearable (Moenga & Mereipei, 2021). Financial institutions may use various risk assessment techniques, such as qualitative assessments, quantitative modeling to evaluate risks and their potential consequences. Risk assessment should take into account both inherent risks that exist without any controls in place and residual risks, which remain after controls have been implemented (Momanyi & Njiru, 2016).

After assessing risks, financial institutions need to develop and implement appropriate tactics to mitigate, transfer, or accept risks in accordance with their risk appetite and tolerance. Mitigation strategies may include the implementation of internal controls, policies, procedures, and risk management practices designed to minimize the possibility or effect of antagonistic proceedings (Haasan, 2021). For example, financial institutions may establish credit risk management policies to limit exposure to risky borrowers, or operational risk controls to enhance the reliability and efficiency of internal processes. Financial institutions may also use risk transfer mechanisms like insurance, hedging or securitization to transfer risks to third parties (Badara & Saidin, 2019).

Risk assessment is a constant procedure that involves consistent monitoring and review to make sure that risks are efficiently managed to remain within acceptable levels (Muhunyo & Jagongo, 2018). Banks should establish mechanisms for monitoring major risk indicators and performance metrics to identify the efficiency of risk management strategies and the changing risk landscape. Regular reviews of risk assessments and risk profiles enable financial institutions to identify emerging risks, evaluate the efficiency of controls, and make right decisions to adapt to changing circumstances. Therefore, according to Mazur (2018), for having reasonable guarantee that the institution will reach its goals, its management must make sure that each risk is evaluated and handled appropriately. The central idea to adopt risk practices of assessment is the avoidance of possible further failures (Hussaini & Muhammed, 2018).

2.2.4 The Role of Internal Control on the Financial Performance of Financial Institutions

Magara (2013) examined the effect of the internal controls on the financial performance of Credit Cooperative Societies in Kenya and deposit-taking savings. A multiple linear regression model was used in this study to test the correlation between the dependent variable and the independent variables. The regression analysis performed established that the independent variable had a positive relationship with the dependent variable. It was also proved by that research that with the absence of strong internal controls, the SACCOs would not have performed well (Magara, 2013; Uwingabiye, 2019). Similarly, Kyasimire and Njenga (2023) investigated the internal control and the financial performance in the Bank of Kigali (BK). Specifically, their study examined the influence of control activities, control environment, risk assessment, and monitoring on financial performance of the bank (Muthusi, 2017). Its findings highlighted that the BK's risk assessment had a very high mean effect on its financial performance (4.34). They also identified that its risk assessment regression coefficients was significant. The results also discovered that control activities in BK were at a very high average or mean (4.63) with positive and significant moderate relation with activities control and the financial performance. Furthermore, the regression of coefficients of control activities was found as $\beta_2 = 0.503$, $p\text{-value} = 0.016 < 0.05$). Finally, the research concluded there is a significant positive correlation between BK'S monitoring system and its financial performance, with a significant regression coefficient (Kyasimire & Njenga, 2023; Odhiambo, 2022).

Mugabo et al. (2022), on the other side, assessed the effect of internal control systems and the performance of World Vision Kigali-Rwanda as a non-governmental organization (NGO). Their findings disclosed that a significant and positive correlation exists between the control environment, control activities, risk assessment, and monitoring within the NGO's performance. This study concludes that World Vision Kigali-Rwanda's operational success depends on its internal control system and the way it functions as influenced by the monitoring systems, control environment and risk assessment to enhance the institutional performance (Mugabo et al., 2022; Uwingabiye, 2019).

Reviewing the above literature, there is a critical research scarcity conducted assessing the internal control impact on the financial performance of financial institutions in Rwanda. Some previous researchers who conducted their research on this topic are from foreign countries. Therefore, their findings are relevant in their countries not in Rwanda. Furthermore, a few of prior studies have deeply discussed on environmental control, assessment of risk, activities control, but they also did not assess the exact correlation of internal control, and financial performance of financial organizations. Some of the theories used in various studies did not highlight their relevance to internal control, and financial performance. They did not show how they connect environmental control, assessment of risk, activities control to financial performance of financial institutions. Finally, as far as methodology is concerned, some studies failed to use secondary data, and did not show how they analyzed financial performance indicators (ROA, ROE and NPM).



Therefore, to address these gaps, it is vital analysis of the importance of internal control on financial performance of financial institutions referring to Umurenge Bwishyura SACCO as the case study.

III. METHODOLOGY

3.1 Study Site and Scope

This research was conducted in Umurenge Bwishyura SACCO located in Bwishyura Sector, Karongi District of Western Province in Rwanda. Bwishyura SACCO is one of financial institutions operating under the above specified area. It was carried out within a period of three years, from 2022 to 2024.

3.2 Research Design

Throughout this research, researchers used descriptive research design (Irakarama et al., 2024; Nteziyaremye et al., 2024). It firstly aimed to accurately portray respondents and provides a thorough description of the research problem (Creswell & Plano-Clark, 2016; Nteziyaremye et al., 2025). This design was employed to get information about the recent status of the problem. The second objective for using this method was to describe “what exists”, respecting the situation of variables (the correlation between dependent variable and independent variables).

3.3 Population of the Study

The total population for this study comprised of 19 individuals (9 executive members and 10 members of board of directors) of Bwishyura SACCO.

3.4 Sampling Technique

This research used universal sampling technique (Cohen et al., 2018). The universal sampling technique involves choosing a sample where every individual from the target population has an equal likelihood to be selected. The researchers used universal sampling technique to take a sample of all employees and members of board of directors in Bwishyura SACCO since they are few in number (Cohen et al., 2018).

3.5 Sample Size

Because the study's population is small as aforementioned, the researchers used 19 respondents as the sample size since they are few in number. Therefore, the researcher had no challenge in accessing them.

Table 1

Sample Size Information

Position of respondents	Population	Sample size	Sampling technique
Manager	1	1	Universal sampling technique
Accountant	1	1	
Loan officer	1	1	
Recovery officer	1	1	
Tellers	3	3	
Internal Auditor	1	1	
Customer care agent	1	1	
Members of Board of Directors	10	10	
Total	19	19	

3.6 Type of Data

Both primary data and secondary data were used as key sources of desired data in this study. The primary data came straight from the respondents as the direct investigation and observations. The data were obtained through self-administered questionnaires (Cohen et al., 2018; Nteziyaremye et al., 2025). On the other side, the secondary data involved information obtained from existing researches related to this study (Cohen et al., 2018) and other reviewed documents, such as books (Creswell & Plano-Clark, 2016), and existing financial reports of Bwishyura SACCO to get background and understand information of studies on similar topics (Kakooza, 1996).

3.7 Data Processing

To check accuracy, completeness, and comprehension of data collected, an editing of raw data was done. The aim of editing was to find out mistakes made during the collection of the field data, to monitor correctness and check if there were any incomplete spaces in the questionnaire. Coding was also used to recap data by categorizing diverse responses, for easy analysis and interpretation (Cohen et al., 2018). Finally, a tabulation including organizing the data



into statistical tables such as percentages of the responses to questions and their calculated occurrences was made by the researchers to clearly present findings in an easy and understandable way.

3.8 Data Analysis

Data gathered from the field were recorded and coded into Statistical Package for the Social Sciences (SPSS) software version 16.0 (Baylor University, 2025). They were explored with the use of frequency, average (Mean), and standard deviation. Several regression analyses was used to enable the researcher establish the correlation between the variables under study.

Additionally, various regression analyses and correlation analysis were employed to explore the correlation between internal control and the financial performance of Bwishyura SACCO. An analysis of variance (ANOVA) was also applied to evaluate the implication of the model in explaining the relationship between variables. The statistical significance of the linear regression model was assessed at a 5% significance level. The adopted regression line model is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Where:

Y is the dependent variable (financial performance), indicated by the ROA, ROE and NPM (Hartanto, 2023).

X_1 , X_2 , and X_3 are independent variables

X_1 : Environment Control

X_2 : Activities Control

X_3 : Assessment of Risk

$\beta_1, \beta_2, \beta_3$: The Regression coefficient

e : Error term or Residual term.

Evaluation of the coefficient of correlation and interpretation

If $r = 1$, there is a perfect relationship or correlation.

If $r \approx 1$, there is a strong positive relationship or correlation.

If $r \approx 0.5$, there is a moderate positive relationship or correlation.

If $r \approx 0$, there is a weak linear relationship or correlation.

If $r = 0$, there is no linear relationship or correlation.

If $r < 0$, means there is a negative linear relationship or correlation.

The mean and standard deviation with interpretation

If $1.0 < \mu < 1.7$, means that there is a very low average or mean

If $1.8 < \mu < 2.5$, means that there is a Low mean - the fact appears less

If $2.6 < \mu < 3.3$, means that there is Neutrality

If $3.4 < \mu < 4.1$, means that there is a High mean - the fact appears more

If $4.2 < \mu < 5.0$, means that there is a very high mean (strong evidence of the existence of the fact)

If $\sigma \leq 0.5$, means that there is Uniformity among respondents.

If $\sigma > 0.5$, means that there is variability among respondents.

3.9 Reliability and Validity of the Research Instruments.

In this study, the reliability of the questionnaire was ensured through a test-retest method, which engaged an administration of the same questions to the same respondents on two separate occasions to check for consistency in the answers. Contrary, to ensure the accuracy of the measurement, the instruments were carefully evaluated for validity. Additionally, the questionnaires were reviewed by an expert who provided feedback to ensure their correctness and relevance. He played a significant role in refining the study instruments to align them with the topic of this research, and ensure the collection of appropriate data (Mugenda & Mugenda, 2003; Saunders et al., 2007).

3.10 Ethical Consideration

In this research study, the following ethical standards were observed whereby the participants were given the option to participate or not after being fully briefed on the study's nature in advance. The details and quality of participants' contributions were kept strictly confidential. Offering confidentiality or anonymity was practiced to encourage participants to provide more open and honest responses (Cooper & Schindler, 2015; Juvylyn et al., 2024).



IV. FINDINGS & DISCUSSION

4.1 Demographic Information of Participants

4.1.1 Gender of Participants

Participants of this study were requested to present their gender characteristics and their responses are displayed in Table below.

Table 2

Distribution by Gender

Gender	Frequency (Freq)	Percentage (%)
Male	10	52.6
Female	9	47.4
Total	19	100.0

This table 2 shows that 52.6% of respondents are males whereas females were 47.4%. This means that more men than women responded. As the questions were not gender sensitive, the inequality in number of respondents in terms of gender has numerical meaning.

4.1.2 Marital Status

The respondents were requested to show their marital status in order to identify the categories of status that participate in this research. Identification of respondents by marital status is an important variable because it identifies respondents.

Table 3

Distribution by Marital Status

Marital Status	Frequency (Freq)	Percentage (%)
Single	4	21.1
Married	15	78.9
Total	19	100.0

The above table displays that the majority of the respondents were married (78.9%) whereas only 21.1% of respondents were single. This implies that most of employees of Umurenge Bwishyura SACCO were married. This reflects the reality the SACCO's staff members are married, thus, they are mature enough, and they know the relevance of internal control system on financial performance of the institution (Mukandoli & Rusibana, 2022).

4.1.3 Age of Respondents

Respondents were also requested to indicate their age group, and the gathered information is presented in the following table.

Table 4

Age Distribution of Respondents

Age group	Frequency (Freq)	Percentage (%)
21-30 years	6	31.6
31 – 40 years	10	52.6
41 and above	3	15.8
Total	19	100.0

Table 4 indicates that 31.6% of respondents were in the range of 21-30 years old whereas 52.6% of them were in the range of 31-40 years, and only 15.8% of respondents were above 40 years old. This implies that the majority of participants are young and mature with their age below 40 years old. This also implies that Umurenge Bwishyura SACCO staff present the maturity characteristics, which shows their recognition of internal control system on financial performance (Mukandoli & Rusibana, 2022).

4.1.4 Education Level of Respondents

Respondents were asked to indicate their highest level of educational and their responses are presented in the following table.

**Table 5***Distribution of Respondents by Education Level*

Education level	Frequency (Freq)	Percentage (%)
Secondary level	5	26.4
University level	14	73.6
Total	19	100.0

Table 5 illustrates that only 26.4% of respondents had a secondary level while 73.6% of them were university graduates. This shows again that Most respondents in this study have attained a university-level education. This suggests that the majority of respondents possess a sufficient level of knowledge about the role of internal control on financial performance of Bwishyura SACCO (Mukandoli & Rusibana, 2022).

4.1.5 Experience of Participants

Respondents were also asked to present their service experience in Bwishyura SACCO for the purpose of ensuring whether they have sufficient information regarding the variables under this study. Their views and opinions are presented below:

Table 6*Distribution of Respondents by Experience*

Experience range	Frequency (Freq)	Percentage (%)
Between 1-2 years	4	21.1
Between 3-4 years	10	52.6
5 years and above	5	26.3
Sum	19	100.0

Table 6 above summarizes the experience level of the participants. From Table, 21.1% of respondents worked for the SACCO in a period between 1-2 years whereas 52.6% worked for a period between 3-4 years, and 26.3% of respondents worked for a period of 5 years and above respectively. From these findings, it was established that the majority of respondents have a sufficient experience with at least 3-4 and above years of working experience. This means that the majority of respondents demonstrated a sufficient level of knowledge and skills about the role of internal control on financial performance of Bwishyura SACCO due to their presented experience (Juvylyn et al., 2024).

4.2 Research Objective-Related Findings

During this research, respondents were requested to indicate their level of agreement on different statements related to environment, control activities, risk assessment and internal control respectively. The following sections present the findings.

4.2.1 Relationship between Control Environment and Financial Performance of Bwishyura SACCO

The respondents were requested to share their perspectives on the control environment as an element of internal control activities in Bwishyura SACCO. Table below presents their responses.

Table 7*Respondents' Views on Control Environment in Bwishyura SACCO*

Statements	Mean	Std. Dev.
The integrity level experienced by operating staff can influence financial performance of SACCO	4.29	0.457
The strict adherence to general ethical values is essential. The strict adherence to general ethical values in the SACCO influences financial performance of the SACCO	4.27	0.450
The SACCO has established policies and procedures that guide operations and decision-making processes	4.23	0.430
The board of Directors is competent and strongly committed to implement the recommendations from the internal audit unit to improve financial performance	4.25	0.442
Management skills in management of banking system influence on the bank financial performance	4.20	0.422
The SACCO has set mechanisms to ensure that employees possess the necessary knowledge, skills, and resources to perform their duties effectively	4.21	0.426
Employees of the SACCO are held accountable for their day to day actions	4.20	0.422
Average	4.235	0.435

From Table 7, the findings revealed that the majority of respondents strongly agreed that the level of integrity experienced by operating staff can influence financial performance of the SACCO (Mean=4.29, S.D=0.457); the strict adherence to general ethical values in the SACCO influences financial performance of the SACCO (Mean=4.27,



S.D=0.450); the SACCO has established policies and procedures that guide operations and decision-making processes (Mean=4.23, S.D=0.430); the board of directors is competent and strongly committed to implement the recommendations from the internal audit unit to improve financial performance (Mean=4.25, S.D=0.442); management skills in management of banking system influence on the bank financial performance (Mean=4.20, S.D=0.422); the SACCO has set mechanisms to ensure that employees possess the necessary knowledge, skills, and resources to perform their duties effectively (Mean=4.21, S.D=0.4256); employees of the SACCO are held accountable for their day to day actions (Mean=4.20, S.D=0.422).

Generally, all seven statements highlighting control environment as a component of internal control activities in Bwishyura SACCO revealed the average of 4.235 and SD of 0.435. This concludes that all respondents strongly agreed that control environment is among components of internal control activities in Bwishyura SACCO. The control environment is crucial for the effectiveness of the internal system and financial performance (Uwingabiye, 2019). A strong control environment, characterized by the moral values, integrity, and competence of the employees, as well as the leadership style and commitment of management and the board, plays a critical role in shaping the design and implementation of control policies and procedures (Uwingabiye, 2019).

According to some researches (Muhunyo & Jagongo, 2018); Uwingabiye, 2019), when the above elements are in place, the bank can ensure that operations are conducted ethically and efficiently, reducing the likelihood of errors, fraud, and regulatory breaches. This fosters a culture of accountability and trust, which enhances the accuracy of financial reporting, safeguards assets, and improves compliance with regulations. Ultimately, a robust control environment supports better decision-making, operational efficiency, and risk management, all of these factors contributes to better financial performance. These findings comply with the observation of Muhunyo and Jagongo (2018), who revealed that control environment and the internal control systems significantly impact the financial performance of higher educational institutions in Nairobi City. Moreover, Uwingabiye (2019) concludes that control environment was revealed to have a positive considerable impact on the financial performance of an institution.

The table below clearly displays the relationship between control environment and financial performance of Bwishyura SACCO.

Table 8

Relationship between Control Environment and Financial Performance of Bwishyura SACCO

		Control environment	Financial performance
Control Environment	Correlation (Pearson)	1	0.715**
	Sig. (2-tailed)		0.000
	N	19	19
Financial performance	Correlation (Pearson)	0.715**	1
	Sig. (2-tailed)	0.000	
	N	19	19

**. The relationship is significant at the 0.01 level (2-tailed).

In table 8, statistical evidence shows that there is a positive high correlation between control environment and financial performance of Bwishyura SACCO which is equal to 0.715* when the significance level (sig.) is 0.000 (less than 0.01), the researcher concludes that the variables are correlated. This leads to the confirmation that there is a significant positive relationship between control environment and financial performance of Bwishyura SACCO. This implies that control environment have positive impact on financial performance of Bwishyura SACCO. These findings are in agreement with Magara (2013)'s observation that control environment positively contributes to the financial performance of SACCOs in Kenya. Kyasimire and Njenga (2023), in their study, they revealed a positive significant regression between the coefficients of the control environment and the financial performance of BK. Similarly, Odhiambo (2022) concluded that control environment has a positive correlation with the financial performance.

4.2.2 Relationship between control activities and financial performance of Bwishyura SACCO

Respondents were requested to share their views on control activities as a component of internal control within Bwishyura SACCO. Table below summarizes their responses.

**Table 9***Respondents' Views on Control Activities in Bwishyura SACCO*

Statements	Mean	Std. Dev.
The SACCO maintains physical controls over assets to prevent theft, loss, or misuse	4.23	0.430
The respects segregation of duties by dividing responsibilities among different individuals to prevent errors and fraud	4.20	0.422
The SACCO has set authorization and approval processes for various transactions and activities in accordance with established policies	4.21	0.426
The SACCO information technology to safeguard data, systems, and networks from security breaches, unauthorized access, and data manipulation	4.26	0.448
The SACCO takes corrective action to address identified weaknesses	4.20	0.422
Reconciliation of the SACCO's accounts are done on a daily basis to detect discrepancies and ensure accuracy and completeness	4.25	0.442
Average	4.22	0.431

From Table 9, the results highlighted that the majority of participants agreed strongly that the SACCO maintains physical controls over assets to prevent theft, loss, or misuse (Mean=4.23, S.D=0.430); the respects segregation of duties by sharing responsibilities among various individuals to avoid errors and fraud (Mean=4.20, S.D=0.422); the SACCO has set authorization and approval processes for various transactions and activities in accordance with established policies (Mean=4.21, S.D=0.426); the SACCO information technology to safeguard data, systems, and networks from security breaches, unauthorized access, and data manipulation (Mean=4.26, S.D=0.448); the SACCO takes corrective action to address identified weaknesses (Mean=4.20, S.D=0.422); reconciliation of the SACCO's accounts daily practiced to detect discrepancies and ensure accuracy and completeness (Mean= 4.25, S.D=0.442).

Briefly, all six statements highlighting control activities as a component of internal control activities in Bwishyura SACCO revealed the average mean of 4.22 and SD of 0.431. This is to conclude that all respondents strongly agreed that control activities are among components of internal control activities in Bwishyura SACCO. These imply that the bank enhances its financial performance by implementing robust internal controls activities. These findings are in line with the observations of Muthusi (2017) who found out that control activities contribute positively to the financial performance of commercial banks in Kenya.

Table below presents the correlation between control activities and the financial performance of Bwishyura SACCO, with the findings outlined accordingly.

Table 10*Relationship between Control Activities and Financial Performance of Bwishyura SACCO*

		Control activities	Financial performance
Control activities	Correlation (Pearson)	1	0.823**
	Sig. (2-tailed)		0.000
	N	19	19
Financial performance	Correlation (Pearson)	0.823**	1
	Sig. (2-tailed)	0.000	
	N	19	19

**. Correlation is significant at the 0.01 level (2-tailed).

Here, the statistical evidence shows that there is a positive high correlation between control activities and financial performance of Bwishyura SACCO which is equal to 0.823 and the sig. is 0.000 - less than 0.01. If the Sig. is less than significant level, therefore, the researcher concludes that variables are highly related. This leads to confirm that there is a significant positive relationship between control activities and financial performance of Bwishyura SACCO. This implies that control activities have positive impact on financial performance of Bwishyura SACCO. These findings are in agreement with the observations of Hussaini and Muhammed (2018), who revealed that there is a positive and significant relationship between control activities and bank performance.

4.2.3 Relationship between Risk Assessment and Financial Performance of Bwishyura SACCO

The respondents were requested to share their perspectives on risk assessment as part of the internal control activities at Bwishyura SACCO, and Table below presents their responses.

**Table 11***Respondents' Views on Risk Assessment in Bwishyura SACCO*

Statements	Mean	Std. Dev.
The SACCO has a functioning well risk management board	4.20	0.422
Management has criteria of identifying which risks are most critical and this influences financial performance to great extent	4.26	0.448
SACCO conducts regular risk assessments to evaluate the likelihood and potential impact of credit risk, market risk, operational risk, liquidity risk, and compliance risk, among others on their operations	4.23	0.430
The SACCO identifies various types of risks that it may face	4.20	0.422
Management has developed and implemented appropriate strategies to mitigate, transfer and accept risks	4.21	0.426
SACCO uses transfer mechanisms of risk such as insurance, hedging and transferring risks to third parties	4.25	0.442
Management commitment in the installation of risk management techniques helps in boosting the financial performance of the SACCO	4.26	0.448
The SACCO conducts regular monitoring and revise to ensure that risks are managed effectively and remain within acceptable levels	4.20	0.422
Average	4.226	0.432

From Table 11, the findings revealed that the majority of respondents strongly agreed that the SACCO has a well-functioning risk management board (Mean=4.20, S.D=0.422); Management has criteria of identifying which risks are most critical and this influences financial performance to great extent (Mean=4.26, S.D=0.448); SACCO conducts regular risk assessments to evaluate the likelihood and potential impact of credit risk, market risk, operational risk, liquidity risk, and compliance risk, among others on their operations (Mean=4.23, S.D=0.430); the SACCO identifies various types of risks that it may face (Mean=4.20, S.D=0.422); management has developed and implemented appropriate strategies to mitigate, transfer and accept risks (Mean=4.21, S.D=0.442); SACCO uses risk transfer mechanisms such as insurance, hedging and transferring risks to third parties (Mean=4.25, S.D=0.442); management commitment in the installation of risk management systems help to boost the financial performance of the SACCO (Mean=4.26, S.D=0.448); the SACCO conducts consistent monitoring and review to ensuring risks are successfully implemented and remain within acceptable levels (Mean=4.20, S.D=0.422).

Concisely, all 8 statements highlighting risk assessment as a component of internal control activities in Bwishyura SACCO revealed the average of 4.226 and SD of 0.432. This is to conclude that all respondents strongly agreed that risk assessment is among components of internal control activities in Bwishyura SACCO, when it is well treated it can lead to financial performance. These findings are in line with the observation of Magara (2013) who found out that risk assessment positively contributes to the financial performance of SACCOs in Kenya. Table below displays a correlation between risk assessment and financial performance of Bwishyura SACCO and the findings are presented in Table below:

Table 12*Relationship between Risk Assessment and Financial Performance of Bwishyura SACCO*

		Risk assessment	Financial performance
Risk assessment	Correlation (Pearson)	1	0.837**
	Sig. (2-tailed)		0.000
	N	19	19
Financial performance	Correlation (Pearson)	0.837**	1
	Sig. (2-tailed)	0.000	
	N	19	19

** . Correlation is significant at the 0.01 level (2-tailed).

In table 12, statistical evidences show that there is a positive high relationship between risk assessment and financial performance of Bwishyura SACCO which is equal to 0.837 and the sig. is 0.000, less than 0.01. This leads to confirm that there is a significant positive relationship between risk assessment and financial performance of Bwishyura SACCO. This implies that risk assessment has positive impact on financial performance of Bwishyura SACCO. These findings are in accordance with the observation of Muthusi (2017) who showed a positive and significant relationship between risk assessment and financial performance of the commercial banks.

4.2.4 Role of Internal Control in Financial Performance of Bwishyura SACCO

Respondents were also requested to present their views on the role of internal control on financial performance of Bwishyura SACCO.

**Table 13***Respondents' View on the Role of Internal Control on Financial Performance of Bwishyura SACCO*

Statements	Mean	Std. Dev.
Internal control helps in preventing and detecting error and frauds	4.23	0.430
Internal control enables management of the SACCO to carry out business operations in orderly and efficient manner	4.20	0.422
Internal control ensures effective utilization of resources	4.25	0.442
Internal control helps to safeguard the SACCO's assets	4.20	0.422
Internal control provides reasonable assurance regarding the accuracy completeness and reliability of the accounting records and financial reporting	4.21	0.426
Internal control ensures compliance with internal policies and other applicable laws and regulations	4.26	0.448
Average	4.22	0.431

From Table 13, the findings highlighted that a great number of respondents strongly agreed that internal control helps in preventing and detecting error and frauds (Mean=4.23, S.D=0.430); internal control enables management of the SACCO to carry out business operations in efficient and orderly way (Mean=4.20, S.D=0.422); internal control ensures effective utilization of resources (Mean=4.25, S.D=0.442); internal control helps to safeguard the SACCO's assets (Mean=4.20, S.D=0.422); internal control provides reasonable assurance regarding the accuracy completeness and trustworthiness of the accounting records and financial reporting (Mean=4.21, S.D=0.426); Internal control ensures agreement with internal policies and other relevant laws and regulations (Mean= 4.26, S.D=0.448).

Generally, all 7 statements highlighting the effect of internal control in financial performance of Bwishyura SACCO demonstrated the average mean of 4.23. This leads to that most of respondents strongly agreed that internal control plays a significant role in financial performance of Bwishyura SACCO. These findings are in agreement with the observations of Hussaini and Muhammed (2018) and Muthusi (2017), who proved the existence of a positive and significant relationship between internal control and bank performance.

4.3 Multiple Regression Analysis

This research also conducted multiple regression analysis where the results contained the model summary, analysis of variance (ANOVA), and the regression model coefficients as presented below.

Table 14*Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.898 ^a	0.869	0.858	0.000

a. Predictors: (Constant), Control environment; Control activities and Risk assessment

b. Dependent Variable: Financial performance of Bwishyura SACCO

Table 14 above shows that the coefficient correlation R=0.898. This indicates that there is a positive strong relationship between internal control and financial performance of Bwishyura SACCO. The coefficient of determination, adjusted R Square indicates the variation in the dependent variable (financial performance) due to variation in the independent variable. From the findings in the above table, the value of adjusted R square was 0.858. This indicates that there was a variation of 85.8% in financial performance of Bwishyura SACCO due to changes in internal control factors (control environment; control activities and risk assessment). The overall result shows that 85.8% of the variation in financial performance of the bank is justified by the identified internal control components. However, 14.2% of the variation in the financial performance of this SACCO is justified by other components that are not captured by this model.

Table 15*ANOVA Table*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.268	3	1.341	4.097	0.001(a)
	Residual	7.027	16	2.51		
	Total	18.295	19			

a. Predictors: (Constant), Control environment; control activities and risk assessment

b. Dependent Variable: Financial performance of Bwishyura SACCO

Table 15 shows the value of significance (p-value) of the model was 0.001 which is less than 5%. This indicates that the selected variables (control environment; control activities and risk assessment) are true predictors of financial



performance of Bwishyura SACCO. Besides, these parameters are perfect for making conclusions as the value of significance (p-value) is below 5%. There is an indication that the control environment, control activities and the risk assessment significantly influence the financial performance of Bwishyura SACCO. As the significance value was less than 0.05, this indicates that the model is statistically significant at a 95% level of confidence (Kwak, 2023).

Table 16*Linear Regression Coefficients*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.553	0.603		2.473	0.001
	Control environment	0.374	0.093	0.360	3.287	0.001
	Control activities	0.471	0.087	0.451	3.215	0.000
	Risk assessment	0.480	0.072	0.472	2.412	0.000

Dependent Variable: Financial performance of Bwishyura SACCO

Table 16 above reveals that holding control environment control activities and risk assessment to a constant zero, financial performance of Bwishyura SACCO would be 0.553; a unit increase in control environment could lead to the increase of financial performance of Bwishyura SACCO by a factor of 0.374; a unit increase in control activities would lead to increase in financial performance of Bwishyura SACCO by a factor of 0.471; and a unit increase in risk assessment would lead to increase in financial performance of Bwishyura SACCO by a factor of 0.480.

This study also discussed that the p-values of control environment (0.001), control activities (0.000), risk assessment (0.000) were less than 0.05; an indication that the influence of control environment; control activities and risk assessment was enough to improve financial performance of Bwishyura SACCO. Therefore, the research concludes that the control environment has a positive-significant correlation with the financial performance of the SACCO (Kwak, 2023). The control activities also have positive and significant relationship with the financial performance of Bwishyura SACCO. Similarly, the risk assessment was found to have positive and significant relationship with the financial performance of the SACCO. Thus, the control environment; control activities and risk assessment positively influence the financial performance of Bwishyura SACCO. Therefore, the estimated linear regression model (Equation) was then identified as follows:

$$Y = 0.553 + 0.374X_1 + 0.471X_2 + 0.480X_3$$

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

Based on this study's findings, it was concluded that internal control is a critical factor influencing the profitability the SACCO, enhancing its financial performance by mitigating risks and ensuring operational efficiency. Proper control environment, regular risk assessments, strong management commitment to risk management, and continuous monitoring help the bank maintain risks within acceptable levels. Key controls activities, such as segregating duties, ensuring proper authorization, safeguarding assets, daily reconciliations, and using information technology to protect data, contribute to accuracy and fraud prevention. Internal controls also ensure compliance with policies and regulations, improve decision-making, prevent fraud, safeguard assets, and enhance trust among stakeholders, ultimately boosting financial performance. Moreover, the study indicated that control environment, control activities and risk assessment explain 85.8% of the variations in the financial performance of the SACCO.

5.2 Recommendations

Based on this study's findings' Bwishyura SACCO should continue to enhance robust and strong control environment for better operational effectiveness, decision-making, and risk management. As a result, these may contribute to improved financial performance. It should, then, strengthen its risk assessment processes to successfully identify, evaluate, and mitigate risks, which could help protect its assets, reduce losses, and boost financial performance. Bwishyura SACCO also should maintain robust control activities to detect, prevent, and rectify errors or fraud while ensuring adherence to regulations and internal policies, which can result in increased operational efficiency, lower risk, and improved financial performance.

Lastly, as the current study sought to investigate the role of internal control in financial performance of financial institutions with a case study of one Umurenge SACCO, further studies should be made to expand the sample size, scope and consider the impact of other factors of internal control and their role in the financial performance of financial institutions in Rwanda.



Declaration of Interest

The authors declares that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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A TQM-centered framework for improving student satisfaction in higher education institutions in Zambia

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ABSTRACT

The study aimed to examine the application of Total Quality Management principles in selected Zambian higher education institutions and propose a framework for improving student satisfaction. The study employed a mixed-method study and used an explanatory sequential design. The population for quantitative data comprised 795 students and 16 participants for qualitative data, based on the principle of saturation. Quantitative data was collected through a questionnaire and qualitative data through semi-structured interview guides from 14 participants from higher education institutions, comprising quality assurance officers and one of the following: university leadership, administrative staff, and faculty members, and 2 representatives from the Higher Education Authority. For data analysis, quantitative data was analyzed using SPSS (Statistical Package for the Social Sciences) version 26.0, employing descriptive statistics, while qualitative data from the interviews was analyzed using thematic analysis. Findings show that proactive leadership, participatory decision-making, and student-centered approaches enhance satisfaction, while resistance to change, resource limitations, and inadequate training constrain implementation. The study concludes that a context-sensitive TQM framework can significantly improve academic quality, and this will lead to an improvement in student satisfaction in higher education institutions. The study recommends that regulatory bodies put quality standards that will guide institutions, while institutional leadership translates these requirements into internal strategies through resource allocation, policies, and a culture of quality. Effective implementation of core TQM pillars—stakeholder engagement, governance, quality assurance, continuous improvement, and adequate support systems—strengthens institutional performance and service delivery.

Keywords: Continuous Improvement, Higher Education, Leadership, Student Satisfaction, Total Quality Management, Zambia

I. INTRODUCTION

According to Wong and Chapman (2022), student satisfaction is famously recognized as a fundamental indicator of institutional quality in higher education as it promotes student retention, learning outcomes, and institutional reputation. Further research by Wong and Chapman (2022) also shows that different forms of interaction (student-student, student-instructor) and service dimensions shape multiple facets of student satisfaction, including satisfaction with program, teaching, facilities, and support services, making a systemic approach to quality management necessary.

Meanwhile, Total Quality Management (TQM) is used in many service industries like education to improve quality and stakeholder satisfaction. And this is because it places a lot of emphasis on customer focus, leadership commitment, process orientation, staff involvement, and continuous improvement. Empirical studies of TQM in universities report a correlation between TQM implementation and improvements in institutional outcomes. For example, studies by Al-Zoubi et al. (2023) show that there is a positive association between TQM implementation and improvements in institutional outcomes such as greater staff engagement, better community service and improved processes. This implies that TQM principles can be adapted to higher education contexts to promote continuous quality improvement (Al-Zoubi et al., 2023).

According to Mwiya et al. (2017), in Zambia, concerns about service delivery in HEIs, such as limited learning resources, overcrowded lecture facilities, delayed administrative responses, and inconsistent student support, have been documented alongside national efforts to strengthen quality assurance through the Higher Education Authority (HEA). They further argued that these systemic and operational challenges call for the need for an integrated, context-sensitive quality-management framework that places students at the center of institutional processes.

Studies from different regions of the world show that student satisfaction is generally achieved when institutions provide good teaching, quality services, adequate infrastructure, and responsive administration (Butt & Rehman, 2010; Wong & Chapman, 2022). They further argue that in higher education institutions where Total Quality Management



(TQM) practices are weak or not applied consistently, coming up with a TQM framework that is structured well can help improve both academic and administrative services. This can be achieved by standardizing procedures, strengthening feedback systems, and promoting continuous improvement in service delivery (Wong & Chapman, 2022).

Since Zambia is striving to strengthen its quality assurance requirements and there is evidence that students are dissatisfied in some higher education institutions, this study sought to develop a Total Quality Management (TQM) framework that is suitable for Zambian HEIs. The framework will integrate TQM principles, local factors that influence student satisfaction, and Zambia's Quality Assurance Guidelines. It is designed to provide a practical guide for institutional leaders, quality assurance units, and policymakers to help improve students' learning experiences and overall institutional performance.

1.1 Statement of the Problem

While the Higher Education Authority has set minimum standards for all HEIs, the implementation of comprehensive quality management systems like TQM remains inconsistent across institutions. Recent local studies indicate uneven adoption of quality management systems such as TQM. For example, Bwalya (2023) observed that QA units often focus more on accreditation requirements than on internal QA functions. Additionally, a study by Mushumba et al. (2024) highlighted that the HEA's regulatory and quality efforts have had an impact on teaching and learning. However, progress remains slow and uneven. This inconsistent adoption of QAMS can negatively affect student satisfaction in HEIs. A lack of research in this area may hinder evidence-based policymaking, potentially leading to ineffective regulations and misallocated resources in higher education.

1.2 Research Objective

The objective of this study is to propose a TQM-centred framework for improving student satisfaction in Zambian Higher Education Institutions.

II. LITERATURE REVIEW

2.1 Theoretical Review

This study is informed by the integrated framework, which combines Total Quality Management (TQM), the SERVQUAL model, and Stakeholder Theory to explain how student satisfaction can be improved in Higher Education Institutions (HEIs). TQM is used as the main management approach. It explains that quality improves when leadership is committed, staff are involved, processes are well managed, and the institution focuses on students' needs (Kemenade et al., 2020). In HEIs, TQM encourages institutions to redesign academic and administrative processes, use feedback, and keep improving their services so they can meet student expectations (Taroreh et al., 2022). For this study, TQM acts as the set of independent variables: leadership, continuous improvement, customer focus, staff involvement, and process management.

The SERVQUAL model then interprets how students assess service quality through five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. Recent studies show that SERVQUAL is still effective for measuring student perceptions of teaching, facilities, administration, and support services, and that higher scores in these dimensions lead to higher student satisfaction (Sibai et al., 2021; Magasi et al., 2022). This means that good TQM practices should improve internal processes, which students will experience as better service quality across the SERVQUAL dimensions.

Stakeholder Theory supports why student satisfaction should be a priority. It states that HEIs ought to create value for their primary stakeholders, especially students, to maintain legitimacy, reputation, and strong performance (Langrafe et al., 2020). Studies also show that institutions that involve stakeholders, share information, and consider their needs tend to create better outcomes and better student experiences (Camilleri, 2021; Langrafe et al., 2020). Therefore, Stakeholder Theory explains why student satisfaction is an important result of TQM efforts.

2.2 Empirical Review

2.2.1 TQM Framework for Improving Student Satisfaction in Higher Education Institutions in HEIs

From the global perspective, it has been found that higher-education institutions apply quality-management approaches, particularly Total Quality Management (TQM), in order to improve service delivery and student satisfaction. Scholars emphasize that TQM principles such as leadership commitment, customer focus, process orientation, continuous improvement, and staff involvement must be aligned with academic processes and student-support systems to generate meaningful quality gains (Kemenade et al., 2020). Studies that utilize service-quality models like SERVQUAL show that factors such as reliability, responsiveness, and assurance play a major role in shaping student satisfaction and retention in competitive higher-education environments (Kemenade et al., 2020). Within this global body of work, some studies give relevant insights into how TQM-related practices influence educational quality. For



example, BazmAmoon and Hejazi (2021) examined the implementation of TQM in an educational organization and found that TQM principles significantly improved staff job satisfaction, especially through leadership involvement, employee participation, and continuous improvement. Although the study focused on staff rather than students, it demonstrates how TQM shapes institutional culture and internal quality systems, conditions that indirectly support better student experiences.

A study by Nikkah et al. (2018) explored the influence of service quality and relationship-marketing practices on student satisfaction and retention at Payame Noor University. The study found that service-quality dimensions such as responsiveness, reliability, empathy, and assurance were strong predictors of student satisfaction, which subsequently enhanced retention. Although not explicitly framed as a TQM model, the findings closely align with TQM principles, stressing customer (student) focus and continuous improvement.

Around African HEIs, research studies apply SERVQUAL or SERVPERF to evaluate service quality and its effects on student satisfaction. Studies from countries like South Africa, Ghana, Ethiopia, Tanzania, and other countries have revealed gaps between student expectations and actual service delivery, especially regarding infrastructure, ICT resources, timely feedback, and the availability of academic support (Amoako & Asamoah-Gyimah, 2020; Lodesso et al., 2021; Mashenene, 2019; Minja et al., 2024). These gaps contribute to reduced satisfaction levels and stress the need for institutionalizing stronger quality-management practices. African scholars frequently recommend adopting continuous-improvement mechanisms, strengthening institutional leadership, and formalizing quality-assurance structures and approaches that align closely with TQM principles (Lodesso et al., 2021; Mashenene, 2019). However, the African literature consistently notes that the success of quality-management interventions is influenced by contextual factors such as resource constraints, organizational culture, and administrative capacity.

In Zambia, in as much as there are few studies with a focus on Total Quality Management (TQM), there is some robust evidence on service quality and student satisfaction. A study by Mwiya et al. (2019) revealed that all five SERVQUAL dimensions tangibility, reliability, responsiveness, assurance, and empathy have a very significant effect on the overall student satisfaction, with differences observed across modes of study. For instance, distance-learning students reported higher satisfaction than full-time students, implying that the way services are delivered influences how students perceive quality. Some other studies done in Zambia also point out challenges related to inadequate facilities, not enough library resources, slow administrative response, and weak student support services (Mwiya et al., 2019).

III. METHODOLOGY

3.1 Research Design

The study utilized a mixed-method study, and the design used was an explanatory sequential design to investigate how TQM principles are applied in Higher Education Institutions (HEIs) in Zambia and how they influence student satisfaction. First, quantitative data was collected to measure the levels of TQM implementation and determine the statistical relationship between TQM components and student satisfaction. After analyzing these results, qualitative follow-up data were gathered to help explain the quantitative findings in more depth, particularly why certain TQM practices were effective or not. Together, the two phases provided a stronger and clearer understanding of TQM's role in improving student satisfaction and supported the development of a TQM-based framework for HEIs.

3.2 Study Sites

The study was conducted in seven Higher Education Institutions in Lusaka, representing both public and private institutions, where TQM application varied. These included: University of Zambia (UNZA), National Institute of Public Administration (NIPA), ZCAS University, Cavendish University Zambia, Zambian Open University, Lusaka Apex Medical University, and University of Lusaka. This diversity strengthened the study, making sure that the resulting TQM-based framework is relevant and applicable across Zambia's HEI sector.

3.3 Sample Size and Sampling Procedures

The target population consisted of students, as their perceptions are central to measuring satisfaction and informing the TQM-based improvement framework. Sample size was calculated using Yamane's 1967 formula:

$$n = \frac{N}{1 + N(e)^2}$$

Using a confidence level of 95% and a 5% margin of error:

Public HEIs (population 36,700) $n = 429$

Private HEIs (population 35,700) $n = 366$

Total sample size = 795 students



For the qualitative phase, which utilized in-depth interviews. A total of 16 participants were interviewed, including 14 individuals from the HEIs comprising quality assurance officers and one of the following: leadership, administrative staff, and faculty members, with 2 participants from each institution and two representatives from the Higher Education Authority (HEA). Stratified random sampling was used across public and private institutions to ensure all HEI types were proportionately represented in developing the framework.

3.4 Data Collection Instruments

This study employed two primary data collection tools to capture both quantitative and qualitative information. Quantitative data were collected using a Student Satisfaction Questionnaire, which measured students' perceptions of service quality and overall satisfaction. For qualitative data, two semi-structured interview guides were used, one for HEA representatives and another for key stakeholders, including academic staff, administrative officers, and university leaders.

3.5 Data Analysis

The quantitative data collected from students through the questionnaire were analyzed using SPSS (Statistical Package for the Social Sciences) version 26.0, employing descriptive statistics. Microsoft Excel was used to create graphs for data presentation. Descriptive statistics were first applied to summarize the sample characteristics and provide an overview of the responses. Meanwhile, qualitative data from the semi-structured interviews were analyzed using thematic analysis.

IV. FINDINGS & DISCUSSION

4.1 Quantitative Findings

4.1.1 Demographic Characteristics

In terms of institutional affiliation, 89 (12.3%) were from Cavendish University, 90 (12.4%) from Lusaka Apex Medical University, 102 (14.1%) from NIPA, 90 (12.4%) from University of Lusaka (UNILUS), 193 (26.7%) from University of Zambia (UNZA), 63 (8.7%) from Zambia Open University (ZAOU), and 97 (13.4%) from ZCAS. The results are summarised in Table 1 below.

Table 1

Demographic Summary of Institution

		Frequency (n)	Percent (%)
Institution	Cavendish	89	12.3
	Lusaka Apex Medical University	90	12.4
	NIPA	102	14.1
	UNILUS	90	12.4
	UNZA	193	26.7
	ZAOU	63	8.7
	ZCAS	97	13.4

4.1.2 TQM-Centred Framework for Improving Student Satisfaction

Descriptive statistics from Table 2 below show notable differences in how institutions perceive the potential of a TQM-centred framework to enhance satisfaction with academic services. UNZA recorded the highest mean score of 3.21, followed by ZAOU at 3.08, showing that respondents from these institutions see greater potential benefits. In contrast, Apex (2.59) and NIPA (2.57) had the lowest means, with median and mode values of 2 and 1, respectively, indicating more scepticism among their respondents. Meanwhile, most other institutions had a mode of 4 and medians of 4, showing a shared tendency toward optimistic expectations. The consistently negative kurtosis values suggest relatively flat distributions, pointing to less consensus and a broader spread of opinions across all institutions. Lastly, Standard deviations ranged from 1.29 (UNZA) to 1.51 (NIPA), reflecting moderate variability in responses.

**Table 2***Perception of TQM Framework*

	Mean	Mode	Median	Std. Dev.	Kurtosis
Cavendish	2.89	4	4	1.32	-1.61
UNILUS	2.84	4	3	1.31	-1.52
UNZA	3.21	4	4	1.29	-1.04
ZCAS	2.92	4	4	1.32	-1.54
ZAOU	3.08	4	4	1.41	-1.34
Apex	2.59	1	2	1.48	-1.64
NIPA	2.57	1	2	1.51	-0.88

When asked about the potential benefits of implementing a TQM-centered framework at their institution, respondents highlighted several key expectations. Most participants (37.3%) anticipated improved academic quality, while 25% expected increased engagement. Additionally, 18.6% of respondents believed that better support services would result, and 18.5% saw enhanced communication as a significant benefit. Some responses also indicated a desire for a more conducive environment, though these were less frequent. The distribution is shown in Table 3

Table 3*Potential Benefits of Implementing a TQM-Centered Framework*

Variable	Response	Frequency (n)	Percent (%)
Potential benefits from implementing TQM framework	Improved academic quality	270	37.3
	Enhanced communication	134	18.5
	Improved academic quality	270	37.3
	Increased engagement	181	25.0
	Conducive environment	4	0.6

The frequency table 4 shows that concerns surrounding the implementation of a new TQM-centred framework varied among respondents, with the most significant issue being resistance from staff, cited by 34.0% of participants. Additionally, 23.9% expressed worries about disruptions to existing processes, while 20.6% and 20.2% were concerned about inadequate training and lack of resources, respectively. Although less common, some respondents (=1.4%) noted issues like slow transitions, resistance from students, and the challenge of aligning with global standards.

Table 4*Concerns Regarding the Implementation of a TQM-Centered Framework*

Variable	Response	Frequency (n)	Percent (%)
Concerns about implementing a new TQM-centered framework	Disruption to current processes	173	23.9
	Inadequate training	149	20.6
	Lack of resources	146	20.2
	Resistance from staff	246	34.0
	Other	10	1.4

When respondents were asked how they would like the success of a new TQM-centred framework to be measured, the majority emphasized student-centred methods. About 35.5% preferred using feedback from students, while 33.1% supported measurement through student satisfaction surveys. Additionally, 20.3% suggested monitoring academic performance, and 10.4% recommended comparing institutional benchmarks. A few others (=0.7%) proposed a combination of these methods. The distribution is shown in Table 5.

Table 5*Preferred Methods for Measuring the Success of a TQM-Centered Framework*

Variable	Response	Frequency (n)	Percent (%)
How the new TQM-centered framework to be measured	By comparing institution benchmarks	75	10.4
	By monitoring academic performance	147	20.3
	Through feedback from students	257	35.5
	Through student satisfaction surveys	240	33.1
	Other	5	0.7



To effectively implement and sustain a new TQM-centred framework, respondents identified training and development as the most critical resource, with 39.9% selecting it. This was followed by the need for strong leadership (22.4%) and financial resources (18.6%). Additionally, technological support was noted by 18.4% of respondents as essential. Notably, a few respondents (=0.7%) also highlighted factors like better communication, transparency, and a combination of leadership and training. The results are shown in Table 6 below.

Table 6

Resources for Effective TQM Implementation

Variable	Response	Frequency (n)	Percent (%)
Support necessary to effectively implement and sustain a TQM-centered framework	Financial resources	135	18.6
	Strong leadership	162	22.4
	Technological support	133	18.4
	Training and development	289	39.9
	Other	5	0.7

4.2 Qualitative findings

4.2.1 Leadership Support and Involvement in TQM

Across most institutions, the study revealed that leadership is consistently emphasized as an important tool that facilitates TQM implementation. Most institutions reported that leadership plays a proactive role in promoting quality assurance by creating enabling structures, resources, and policies. For example, UNZA staff affirmed that,

“Leadership supports quality assurance initiatives; the office reports to the Vice-Chancellor.”

At UNILUS, results were similar in nature, as a member of staff also outlined that management promotes quality assurance across all staff members and provides necessary resources.

A common practice reported across institutions such as ZAOU, APEX Medical University, and Cavendish University is senior leaders participating in policymaking or serving on quality assurance committees, signaling strong involvement from top-level management. This practice signifies that leadership does not operate at a distance but instead engages closely with the systems, ensuring quality. However, a minority view from Cavendish University administrative staff indicated that while leadership may be present, their decision-making process might lack inclusivity. They stated that,

“Employees are not totally involved in decision-making.”

This entails that leadership might not fully leverage participatory TQM practices in all instances. This also shows that leadership support, though widespread, may not always be executed through inclusive approaches. On the other hand, the HEA in Zambia shows a clear familiarity with the application of TQM principles in the quality management systems of higher education institutions. According to HEA, these principles, such as leadership, customer focus, continuous improvement, total employee involvement, and a system approach to management, are embedded in their regulatory tools and frameworks. As one representative stated,

“Some of these principles are there in our tools,”

indicating that HEA has institutionalized TQM elements into its evaluation mechanisms.

HEA identifies customer focus as a very significant TQM principle to promote and improve student satisfaction. The authority prioritizes the needs of the students by requiring institutions to conduct student satisfaction surveys and tracer studies, which give insights into learners' experiences and outcomes after graduation. HEA notes that many accredited institutions have begun to implement these and other TQM principles effectively. To support this, HEA plays a facilitative role by guiding institutions in the development and application of standards that incorporate TQM elements. This support makes sure that institutions not only meet compliance requirements but also strive toward continuous improvement in academic and administrative performance.

In all, all respondents pointed out that leadership is the best tool for effective quality assurance and TQM systems. Its visibility, commitment to quality, and willingness to resource initiatives helped create environments conducive to the other TQM principles to flourish.

4.2.2 Customer Focus and Student-Centered Approaches

According to the findings, customer focus was found to be a core principle underpinning their quality management practices as indicated by most of the institutions. There is a notable emphasis on student satisfaction, responsiveness to feedback, and placing students at the center of academic and administrative decisions. For example, ZCAS University Management declared, “

We prioritize the needs of the students at all times.”



Most institutions, including Cavendish University, UNZA, UNILUS, and APEX Medical University, use open-door policies, student surveys, and feedback platforms to engage students and gather input. At Cavendish University, this approach was articulated as,

"Students even go to the office of the Executive Director when they have complaints, and this pushes employees to deliver."

From a quality assurance perspective, institutions such as UNILUS and Zambia Open University stressed that these various platforms are in place to allow students to air their concerns.

4.2.3 Continuous Improvement Culture

One of the most commonly applied principles was found to be Continuous improvement. Most institutions reported that quality assurance frameworks are designed to ensure ongoing enhancement of services, teaching, and institutional systems. At APEX Medical University, it was noted that,

"There is an office for continuous development programs."

Meanwhile, institutions like UNILUS and NIPA reported structured reviews of the processes and regular meetings as vehicles for improvement. A UNILUS staff member shared,

"Every month, there are meetings to look at how we are performing. These meetings help us to improve in areas where we are not doing fine."

Similarly, NIPA offers tuition incentives for staff to pursue training and upskilling-demonstrating how investment in human capital contributes to overall quality enhancement. On the other hand, Cavendish University presented a unique cultural approach by linking continuous improvement to institutional values. Their practice of reflecting on "life experience books" reflects an embedded cultural mechanism supporting reflection and growth.

"The unified culture where all members review life experience books promotes the culture of continuous improvement,"

one staff member explained.

While the majority experience reflects positive use of this principle, a few institutions implied a need for more rigorous systems to monitor and sustain improvements. For example, Zambia Open University rated their overall TQM application as *"average (5/10)"*, suggesting that although continuous improvement is valued, there may be operational or motivational challenges limiting its full realization. On the other hand, HEA indicated that the evaluation of quality assurance management systems in higher education institutions in Zambia is conducted through a combination of institutional audits, physical inspections, and incidental audits. These mechanisms serve to assess whether institutions comply with required internal processes and standards. One respondent noted,

"We evaluate through institutional audits for internal processes, and also through inspections and incidental audits when something is reported to HEA."

It was stressed that the multi-pronged approach ensures both routine oversight and responsiveness to issues as they arise, thereby maintaining institutional accountability and promoting continuous quality improvement. The HEA emphasised that the quality assurance framework is anchored in a tool that outlines 11 specific criteria, each with defined standards that institutions are expected to meet. Monitoring is conducted to ensure full compliance with these benchmarks. As one participant explained,

"The tool has 11 criteria, and each criterion has standards that need to be followed."

The enforcement of these standards is carried out through consistent engagement with institutions, allowing HEA to track progress and address any gaps in implementation. Significant changes have also been introduced under the HEA Amendment Act of 2021, which broadened the scope of higher education to include both universities and colleges. These updates were prompted by the need to realign higher education with current societal and developmental needs. Key reforms include the creation of two Deputy Vice Chancellor positions, one for academic affairs and another for research and innovation, as well as a focus on updating learning programs. These changes reflect a deliberate effort to strengthen leadership, foster innovation, and ensure that academic offerings remain relevant and responsive to the evolving landscape. In addition, HEA reported that the quality assurance practices of Zambian HEIs are largely comparable to international standards, with efforts being made to benchmark within the African continent. However, gaps still exist, particularly due to the relatively recent adoption of quality assurance systems in the country. As one HEA respondent pointed out,

"Quality assurance is still new in Higher Education Institutions in Zambia."

Furthermore, it was stressed that there has been some resistance to change among stakeholders, which has hindered full acceptance and implementation. Respondents echoed that the resistance underscores the need for continued advocacy, capacity-building, and sensitization to foster a shared commitment to quality across the sector.



4.2.4 Total Employee Involvement and Participatory Quality Assurance

Another theme that emerged relates to employee involvement and participatory assurance. The findings showed that Institutions like NIPA, ZCAS, and UNILUS highlighted that decision-making structures are inclusive and engage personnel across levels. For instance, a NIPA explained,

“Each department must have at least 12 meetings in a year. Members of those departments make suggestions that are taken to high-level meetings.”

At ZCAS, employee involvement is enabled through committees that handle specific quality areas. One staff member noted,

“Through different committees that we have, different people are involved in decision-making, which reinforces collaborative decision-making and fosters ownership.”

Most of the respondents noted that these structures often allow not only academic but also non-academic staff to be part of institutional improvements. Despite the general trend, a minority of respondents expressed that while structures exist, genuine involvement may be limited. For example, Cavendish University’s administrative staff shared that,

“Employees are not totally involved in decision-making.”

Similarly, Zambia Open University, despite reporting regular engagement, rated its implementation as only moderately effective. Nevertheless, across the board, the presence of departmental meetings, strategic plan consultations, and professional development opportunities reflects an understanding that involving employees enhances the success of TQM systems. Most of the respondents noted that the extent of that involvement largely depends on institutional leadership, resource allocation, and internal culture.

4.3 Discussion

4.3.1 Perceptions of a TQM-Centered Framework and Student Satisfaction

The quantitative results in Table 2 show that institutions such as UNZA (Mean = 3.21) and ZAOU (Mean = 3.08) view strong potential for a TQM-centered framework to improve student satisfaction, whereas Apex (2.59) and NIPA (2.57) show more skepticism. The findings are reflective of the findings by Kemenade et al. (2020), whose findings proved that well-established institutions with structured QA systems exhibit higher confidence in TQM implementation. Similarly, Al-Zoubi et al. (2023) note that leadership commitment and process management are critical factors in institutional readiness for TQM.

The relatively flat distributions (negative kurtosis) entail diverse opinions, which resonate with some African studies reporting that the differences in student satisfaction perceptions are due to the differences in resources, institutional culture, and administrative capacity (Lodesso et al., 2021; Mashenene, 2019). These results indicate that while TQM is broadly seen as beneficial, the institutional context influences perceptions.

4.3.2 Expected Benefits of Implementing TQM

Quantitative data in Table 3 shows that respondents expect benefits such as improved academic quality (37.3%), increased engagement (25%), enhanced communication (18.5%), and better support services (18.6%). The study findings present similar results to BazmAmoon and Hejazi (2021), who observed that TQM principles significantly improve internal quality and indirectly improve stakeholder satisfaction. Similarly, Nikkah et al. (2018) found that service-quality dimensions aligned with TQM (responsiveness, reliability, empathy, and assurance) positively influence student satisfaction and retention. The emphasis on improved academic quality and student engagement also resonates with Wong and Chapman (2022), who highlight that student-instructor and peer interactions, along with academic and administrative services, shape multiple facets of satisfaction.

In the Zambian context, the findings corroborate Mwiya et al. (2019), whose findings showed that tangible resources, reliable services, responsiveness, assurance, and empathy influence overall student satisfaction. The expectation of enhanced communication and support services shows the importance of student-centered processes, a key principle of TQM.

4.3.3 Concerns about Implementing a TQM Framework

Concerns from Table 4, resistance from staff (34%), disruption of processes (23.9%), inadequate training (20.6%), and lack of resources (20.2%) reflect challenges highlighted in prior African studies. For instance, Amoako and Asamoah-Gyimah (2020) discovered that institutional culture and resistance, in most cases, limit the successful adoption of quality-management practices. Similarly, Mashenene (2019) emphasized that resource constraints and administrative limitations hinder continuous improvement in African HEIs. Qualitative findings reinforce these concerns. At Cavendish University, respondents noted limited employee participation, while Zambia Open University rated TQM implementation as average. These challenges are consistent with global TQM studies, which stress that leadership and staff engagement are crucial for overcoming resistance and sustaining quality initiatives (Kemenade et al., 2020; Al-Zoubi et al., 2023).



4.3.4 Measuring the Success of TQM Implementation

On measuring the success of TQM implementation, the study revealed that respondents preferred student feedback (35.5%) and student satisfaction surveys (33.1%) to evaluate TQM success Table 5. The findings show similar traits with SERVQUAL-based studies (Sibai et al., 2021), which emphasize that student perceptions of service quality, tangibles, reliability, responsiveness, assurance, and empathy directly influence satisfaction. HEA's reliance on tracer studies and surveys further validates the use of student-centered evaluation methods, confirming that effective TQM implementation must incorporate continuous feedback mechanisms.

4.3.5 Resources Needed for Effective TQM Implementation

The findings in Table 6 also show that respondents prioritized training and development (39.9%), leadership support (22.4%), financial resources (18.6%), and technological support (18.4%). Similarly, Kemenade et al. (2020) also put emphasis on staff involvement and capacity-building as a foundation for TQM success. Lodesso et al. (2021) stress that resource availability, leadership, and infrastructure influence quality-management outcomes in African HEIs. Qualitative evidence from UNILUS, NIPA, and HEA demonstrates that structured training programs, monthly reviews, and leadership engagement are critical for sustaining continuous improvement, confirming that TQM requires both human and material resources.

4.2.6 Leadership Support and Involvement

Studies by Al-Zoubi et al. (2023) and Kemenade et al. (2020) present that Leadership is key to successfully implementing TQM. Likewise, the study findings support this, as it was also revealed that leadership is a critical component that facilitates or enables TQM. Institutions like UNZA and ZAOU demonstrate proactive leadership engagement, aligning with findings by BazmAmoon & Hejazi (2021), which show that leadership involvement in QA committees improves institutional quality culture. Minority views from Cavendish University highlight that leadership effectiveness is contingent on inclusivity and participatory decision-making, echoing Amoako & Asamoah-Gyimah (2020) who noted similar constraints in African contexts.

4.3.7 Customer Focus and Student-Centered Approaches

The strong emphasis on student-centeredness at ZCAS, UNZA, and Cavendish supports prior research showing that customer focus in TQM enhances satisfaction (Nikkah et al., 2018; Wong & Chapman, 2022). Mechanisms such as open-door policies, feedback platforms, and surveys reflect TQM principles of customer focus and continuous improvement. However, gaps such as non-incentivized QA circles at UNZA highlight the challenge of operationalizing these practices, aligning with Mwiya et al. (2019), who noted uneven student empowerment in Zambian HEIs.

4.3.8 Continuous Improvement Culture

Continuous improvement is widely adopted across institutions, manifested through structured reviews, professional development, and cultural practices (e.g., Cavendish's life experience books). This confirms Al-Zoubi et al. (2023) and Kemenade et al. (2020), who report that TQM encourages iterative improvements to processes and services. Variability in implementation effectiveness, such as ZAOU rating TQM as "average," aligns with African studies noting resource constraints and limited monitoring as barriers to sustaining continuous improvement (Lodesso et al., 2021).

4.3.9 Total Employee Involvement and Participatory Quality Assurance

Employee participation in decision-making enhances TQM effectiveness. Findings from NIPA, ZCAS, and UNILUS, where departmental meetings and committees encourage participation, align with BazmAmoon & Hejazi (2021), who found that staff involvement strengthens ownership and accountability. Conversely, limited participation at Cavendish and Zambia Open University explains why these institutions report more concerns about resistance to change, echoing African literature emphasizing organizational culture and leadership as moderators of TQM success (Amoako & Asamoah-Gyimah, 2020; Mashenene, 2019).

4.3.10 Proposed TQM-Centered Framework

The proposed TQM-centered framework in Figure 1 below illustrates how quality improvement in Higher Education Institutions should flow from national oversight to enhanced student satisfaction. The Higher Education Authority (HEA) provides the regulatory standards and quality mandate that guide institutional operations. Institutional leadership then translates these requirements into internal strategies by allocating resources, shaping policies, and promoting a culture of quality. This facilitates effective implementation of core TQM pillars: stakeholder engagement, leadership and governance, quality assurance processes, continuous improvement, and adequate resources and support

systems. When these components work together, they strengthen institutional performance, improve service delivery, and ultimately lead to higher student satisfaction



Figure 1

Shows the proposed TQM Centered Framework

V. CONCLUSION & RECOMMENDATION

5.1 Conclusion

The study has shown that implementing a TQM-centered framework has a positive influence on student satisfaction in Zambian HEIs. Leadership support, customer focus, continuous improvement, and employee involvement were identified as key enablers, while resistance to change, resource constraints, and limited training posed challenges. Institutions with proactive leadership and structured participatory mechanisms reported higher perceived benefits of TQM, confirming the applicability of TQM principles and student-centered approaches in improving academic quality.

5.2 Recommendation

The Study recommends that regulatory bodies put quality standards that will guide institutions, while institutional leadership translates these requirements into internal strategies through resource allocation, policies, and a culture of quality. Effective implementation of core TQM pillars, stakeholder engagement, governance, quality assurance, continuous improvement, and adequate support systems, strengthens institutional performance and service delivery.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Youth, memory, and resilience in African literature: A comparative analysis of Sundiata Epic and Weep Not, Child

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ABSTRACT

This paper presents a literary analysis of how African literature reflects the continent's socio-cultural and historical legacies through the interwoven themes of youth, memory, and resilience. By examining D.T. Niane's *Sundiata: An Epic of Old Mali* and Ngugi wa Thiong'o's *Weep Not, Child*, the study compares the coming-of-age journeys of Sundiata and Njoroge, two protagonists shaped by distinct socio-political contexts, to reveal how Africa's historical legacy continues to shape its literary expression. Grounded in reader-response, postcolonial, and narratology theories, the study adopts a literary analysis as a scientific method rooted in observation, hypothesis, and synthesis. The discussion explores how Sundiata's destiny is guided by oral tradition and prophecy, while Njoroge's fate is marked by the trauma of colonialism. Through comparative analysis, the study reveals that both characters embody resilience as they confront inherited cultural memory and undergo personal transformation in the face of adversity. Ultimately, by placing these protagonists side by side, the study underscores the enduring power of literature to illuminate the struggles of African youth while demonstrating how African narrative forms reflect both identity and empowerment through the protagonists' pursuit of self-realisation within the broader tapestry of African history. Based on these findings, future studies should broaden their scope to include female voices, diverse perspectives, and interdisciplinary frameworks, thereby enriching understanding of the evolving nature of African youth literature and transnational connections.

Keywords: Epic, Fiction, History, Protagonist, Resilience, Transformation

I. INTRODUCTION

Literature depicts humanity in the world they live. It is a window through which people perceive the world around them. It is a tool for societal change par excellence. According to Sharma (2025), literature serves as both a mirror for personal reflection and a catalyst for societal transformation. African literature is no exception. Through diverse literary forms, African authors portray people's life across different epochs (Okiche, 2018). Hence, oral tradition and modern writings reflect the powerful modes of transmission of African culture, on the one hand, and resistance to life challenges on the other hand. Djibril Tamsir Niane's *Sundiata: An Epic of Old Mali* and Ngugi wa Thiong'o's *Weep Not, Child* fall into this category. They are the pools from which readers draw insights on African culture, their history, traditions, social values, heroism, virtues, and even vices (Nayana, 2024). This implies the word and the world whereby human beings are subjected to memory and history. The two literary works are distinct but complementary genres that explore how African young generations are responsible to reconcile their personal growth and historical forces around them.

In a literary context, this way of negotiating between traditional values while confronted by politico-economic factors generally influences the coming-of-age journey for transformation. According to Hewett (2005), the coming of age denotes both personal cultural awareness and self-discovery. This involves literary generation striving to find their voice in a changing world. Generally, people are born and grow up gradually, facing the ups and downs in the world around them. This physical and mental growth goes with life experience, paved with challenges and opportunities through which people are transformed from adolescents into ready-made adults.

Genres such as epic poem and written novel serve as a window through which we perceive this world. Critics (Merchant qtd in Bazimaziki, 2017a; Mbele, 2018; Rutherford, 2008; Baldwin, 2020; Okpewho qtd in Bazimaziki, 2017a; Reitz & Finkmann, 2019; Islam & Khatun, 2023; Nethercut, 2020) argue that an epic narrative poem is the most compelling literary form that is centred on a heroic figure, Sundiata, for example, to convey a sweeping vision of life,



encompassing divine relations, moral struggles, social roles and the connection between past, present and the future. His heroic deeds reflect extraordinary courage and unmatched bravery among ancient and contemporary Africans (Adebayo & Alabi, 2025).

Regarding the novel, the term evolved during the Renaissance, springing from the Italian 'novella', which means a short narrative or tale. Initially used to describe short fiction, the term gradually expanded to encompass longer, and more complex narratives. Today, a novel refers to a long fictitious prose narrative that explores multifaceted human experiences by placing characters in varied challenging situations. Among these characters, protagonists are central figures who drive the plot forward, often embodying moral strengths, resilience, and transformation.

In African literature, Thiong'o (1964) presents Njoroge as an archetype of African protagonists. He is described as a young boy, whose aspirations for education and national liberation reflect broadly postcolonial struggles. His quest is emblematic of the tension between the dreams and societal upheaval, a theme emphasized in other African fiction like Chinua Achebe's (1958) *Things Fall Apart*, through Okonkwo's tragic arc illustrating the clash of tradition and colonial influence. Additionally, critics such as Irele (2009) and Gikandi (1992) echoed how African novelists present protagonists not merely as narrative devices but as symbols of historical and ideological shifts. Characters of this type make African fiction a compelling ground not only for literary but also socio-political analysis.

Hence, this study explores how African literature navigates the terrain between memory and history, tradition and modernity by re-imagining cultural identity while confronting colonial legacies. By focusing on these themes, this study supports Caldeira's (2016) view that memory is a tool for re-imagining the future identity, Woods's (2018) study that highlights how African writers use storytelling to subvert dominant historical narrative and reclaim cultural memory. It also supplements Newell's (2018) findings that the power of African literature lies in reconstructing history, bridging ancestral memory with contemporary realities.

1.1 Research Questions

- i. How do *Sundiata: An Epic of Old Mali* and *Weep Not, Child* reflect the intersection of memory and history in shaping African youth identity?
- ii. In what way do *Sundiata* and *Njoroge* confront inherited cultural legacies within their respective socio-political contexts?
- iii. To what extent do African narrative traditions empower or constrain young protagonists in their pursuit of self-realisation and social transformation?

II. LITERATURE REVIEW

2.1 Theoretical Review

This section discusses three theories that guided this study. First, Reader-Response theory is reviewed in light of the study aim. Second, Postcolonial theory is discussed as the literary text under study is situated in Postcolonial Africa. Finally, Narrative theory is considered based on its relevance to oral tradition, the source from which *Sundiata* epic was drawn. Fried (2020) conceptualises theory as a tool, a set of guiding principles that underpin a quest to uncover the unknown within human experience shaped by where individuals live and with whom they interact. Theories explain what occurs, has occurred and why it happens (Dankasa, 2015). As theories connect to real world issues (Bingham et al., 2024), they permeate various domains and are widely applied in research, including literary studies, to describe phenomena and examine the interplay of variables that account for anticipated outcomes (Thomas, 2017). In this vein, this literary analysis is grounded in a three-dimensional lens. It is primarily anchored in reader-response criticism, and contextualized through supporting concepts from postcolonial reading, which illuminates the socio-political backdrops of the texts, and narrative theory which facilitates discussion on how oral versus written forms influence reader engagement. The subsequent section explores how each theoretical framework contributes to analytical approach of this paper.

2.1.1 Reader-Response Lens

The reader-response theory emphasizes that understanding a literary work depends on the reader's perspective rather than the text itself (Rosenblatt, 2014). This literary framework asserts that meaning is not fixed within the text. Rather, it is plural, and shaped by the reader's personal engagement, experiences and emotional responses through close interaction with the text. Fish (1980) argues that the meaning of text is not inherent but dependent on the reader's interpretation, considering their background, their community, and the interpretive strategies they employ. By claiming that interpretation is not the "art of construing but art of constructing", the author confirms that readers do not uncover preexisting meaning but actively create it through their reading process. Thus, reader-response is a criticism framework that bridges literary scholarship (Freund, 1987).



2.1.2 Postcolonial Criticism

Postcolonial theory is a critical framework that examines how a literary work reflects, challenges, interrogates, and reshapes the enduring legacy of colonialism, focusing on issues of power dynamics, cultural identity, and resistance. It foregrounds the way in which colonial literature has constructed the “other”, and how the colonized society reclaim their voice through storytelling. Applied to African literature, postcolonial framework reveals how African writers respond to imperial representations and assert indigenous perspectives. Viewed through a postcolonial lens, African literature becomes a terrain of resistance, cultural preservation, and historical values.

By introducing Orientalism, Said (1978) critiques the portrayal of Africa as inferior and subordinate within Western texts, exposing the ideological underpinnings of colonial authority. Bhabha (1994) expands this critique through the concept of hybridity and mimicry, showing how African writers resist domination by subverting colonial norms. Similarly, Ashcroft et al. (2002) introduce abrogation and appropriation as strategies through which postcolonial literature resists linguistic dominance and reconstructs cultural identity. These theoretical insights are worth applying to Thiong'o's (1964) *Weep Not, Child*, which confronts colonial violence and cultural disintegration, and the *Epic of Sundiata*, which preserves precolonial African leadership and oral tradition.

It distinguishes between story (the chronological sequence of events) and discourse (the way those events are presented), emphasising that narrative form, such as time manipulation, focalisation, and voice, plays a central role in interpretation. In African literature, narrative theory is especially relevant for exploring oral traditions, nonlinear storytelling, and communal memory. Texts like the *Epic of Sundiata* and Ngugi wa Thiong'o's *Weep Not, Child* challenge Western narrative conventions by foregrounding cyclical time, collective experience, and indigenous epistemology (Prince, 2003). These works demonstrate how African narratives resist colonial frameworks and assert cultural identity through unique storytelling techniques (Ashcroft et al., 2002).

2.1.3 Narrative Theory

Also called narratology, narrative theory is a critical lens that analyses how stories are structured and how this structure shapes the meaning. By distinguishing between story and discourse, it emphasises that narrative form—including time manipulation, focalisation, and voice, plays a key role in textual interpretation (Conrad, 2010). This theory focuses not on what the story tells, but how it is told and understood. Particularly, it examines generic elements such as plot, time, perspective from which a story is told, and the voice, to understand how meaning is shaped through the interaction of form and content (Bal & van Boheemen, 2009).

This theory is relevant to the study of African literature, especially in the analysis of nonlinear plot and oral tradition stories. Applying this lens to the study of *Sundiata, An Epic of Old Mali* and *Weep Not, Child* can reveal how these stories challenge the Western narrative conventions by foregrounding collective experience and indigenous ideologies because the two literary works illustrate how African storytelling resists colonial frameworks and asserts cultural identity through strategies rooted in African tradition.

III. METHODOLOGY

This study employs a qualitative, comparative research design to explore the theme of coming of age in two African literary works, Djibril Tamsir Niane's *Sundiata: An Epic of Old Mali* and Ngugi wa Thiong'o's *Weep Not, Child*. Grounded in literary analysis as a systematic method (Jekins, 2012), it follows observation, hypothesis and experiment, while extending this model through triangulation to enhance validity (Gupta, 2024). Literary analysis is treated not merely as interpretive practice but as a scientific framework for engaging with textual form, language, and and thematic structures.

The comparative framework guiding this study is structured around three interrelated dimensions such as textual form, socio-political context, and cultural legacy. By systematically contrasting the oral epic tradition of *Sundiata: An Epic of Old Mali* with the modern form of novel *Weep Not, Child*, the study seeks to demonstrate how narrative structures shape the trajectories of protagonists' coming-of-age journeys. The analysis further situates pre-colonial Mali indigenous sovereignty against Kenya's colonial struggles to illuminate the sociopolitical forces that condition identity formation across distinct historical contexts.

The third dimension of this comparative framework emphasises cultural legacy, examining how oral tradition and written narratives function as vehicles of value transmission, and shape of identity. Supported by a range of secondary sources selected based on their relevance to the topic (Bassot, 2022), this tripartite comparison provides a methodological rigorous basis for comparison, integrating textual, contextual, and cultural analysis.

Besides, three theoretical lenses guided the discussion. Reader-response theory is used to interpret the protagonists' journey while postcolonial perspective is used to interrogate colonial and cultural power structures. Additionally, narrative theory is used to analyse plot structure and storytelling techniques. Findings are cross-referenced across these perspectives to ensure to ensure interpretations mutual reinforcement.

While Noble and Smith (2024) claim that it is essential for qualitative research to apply strategies and methods that strengthen the study reliability throughout design and implementation, this study operationalised such principle by integrating methodological rigour at each stage (Tripathi & Chaturvedi, 2023). Drawing from varied academic repositories, a combination of diverse secondary sources, multiple theoretical perspectives, and contextual analysis, all strengthened the study validity. Inherently, the researchers' positionality is acknowledged with reflexivity employed to mitigate potential biases such as privileging one lens or the most recent sources. The study is constrained by the focus on only two core texts supported by secondary sources. The researchers ensure ethical considerations by respecting oral tradition and avoiding misrepresentation of African identities. Finally, reliability is ensured through peer review, transparent analysis, and engaging with contemporary scholarship (Osei-Tutu, 2022; Mirza et al, 2023).

IV. FINDINGS & DISCUSSION

This section discusses the protagonists in two narrative stories. It draws attention to the word in terms of memory and tradition in *Sundiata's* story. The section further focuses on the world of history and disruption as reflected in *Weep Not, Child*. It winds up by measuring memory and history, considering the two protagonists. Sundiata epic contextual analysis draws on Mbele (2018), who underscores the power of the African epic as a vehicle of history and cultural values. On the one hand, discussion on Njoroge is underpinned by Irele (1981) and Thiong'o's (1986) belief that the postcolonial African novel is a tool, a site to resist the imposed historical challenges and reaffirm cultural sovereignty.

Indeed, through the three research questions, the authors examined how African youth is shaped by the intersection of memory, history and narrative traditions. In addressing the first research question, the study demonstrates how textual traditions and historical contexts are foregrounded. By this, the study shows how the epic of Sundiata situates identity within collective memory and heroic destiny. It further demonstrates that the colonial realistic novel *Weep Not, Child* reflects fractured subjectivity under colonial oppression. Taken together, these conditions influence youth identity formation, showing how memory and history function as both empowering and destabilisation forces.

The second question highlights cultural legacies such as prophecy, lineage, and ancestral continuity. These are reflected in Sundiata's narrative. Contrariwise, disrupted traditions, land dispossession, and colonial education in *Weep Not, Child* determine how much the protagonists have to act and influence their world. While Sundiata confronts inherited legacies by fulfilling prophecy and consolidating leadership, Njoroge struggles against colonial structures that undermine his educational aspirations. This reveals agency shaped by socio-political context.

The third research question situates African narrative traditions that either empower or constraint transformation. Actually, the epic tradition empowers Sundiata's self-realisation and collective transformation, while the novel *Weep Not, Child* exposes the constraints of colonial violence on Njoroge's justice. These mappings show that African narrative traditions are dynamic frameworks where form, context, and heritage influence youth identity, agency, and transformation.

Weep Not, Child offers a poignant portrayal of Kenya's colonial past under British domination. This story unfolds against the backdrop of rising tensions and resistance, capturing the struggle of ordinary Kenyans as they seek liberation from foreign rule. Through its characters and events, the novel explores the deep impact of colonialism and the fight for national independence. Unlikely, the Epic of Sundiata offers a compelling reflection on West African precolonial history, leadership and identity. Building on this foundation, the following sections examine how these dynamics unfold in practice, highlighting the interplay between narrative form and socio-political realities.

4.1 Sundiata and Njoroge's Crucible of Youth

The reader-response has it that meaning of the text is not fixed. It is constructed by the reader's cultural and historical contexts. For example, an African reader might explore *Sundiata* as a powerful symbol of African heroism, resilience and unity, especially when viewed through the lens of African oral tradition. Contrariwise, a reader unfamiliar with African oral tradition may miss these cultural nuances. Similarly, Njoroge from *Weep Not, Child*, can be analysed as a representation struggle for change within an oppressed society, reflecting broader themes of resistance and hope rooted in postcolonial identity. This agrees with Iser (2000) that texts contain "gaps" which readers actively fill, interpreting a dynamic process. Text meaning is thus not objective but dependent on the reader's contextual interpretation and response to it.

4.1.1 Sundiata's Early Trials

Youth generally carry diverse meanings. In this context, the term "youth" generally refers to children and adolescents across a range of age; from early childhood to late adolescence, that is up to 17 years old (Domagalski, 2023). However, it may deeply connote empowerment, transformation, growth, maturity, adaptation, readiness to cope with hurdles, healing the wounds of the oppressed, the quest for experience, among others. In Sundiata epic, youth denote a surface trait of a young prince born with physical disability, but later grows into flame firing warrior, and



consummate leader (Niane, 2006). According to Domagalski (2023) young people's account of stressful experience can significantly affect personal growth, family dynamism, and societal conditions. His youth is associated with transformation marked by physical growth, learning and exile. Bazimaziki (2017b) echoed that Sundiata's youth embodies resilience, divine destiny, and communal hope. His initial vulnerability contrasts sharply with his later heroic exploits, underscoring the idea that greatness often arises from adversity. Within African society, this arc serves as didactic, illustrating that patience, perseverance and faith in destiny are essential virtues. These are nurtured through communal beliefs and cultural tradition. Hence, Sundiata's youth is described as a promise of greatness as, say, he was born as the "child who would make Mali immortal" and it happened so.

Taken together, Sundiata's youth is portrayed as a destiny that was fulfilled; shaped by prophecy and realized through his good leadership. His quest translates into both physical and spiritual growth which culminated in resilience and unity as he restored hope among his followers. He is a protagonist forged into fire. Symbolically, his youth becomes the bedrock of Mali Empire building, embodying cultural strength and continuity. In contrast, Njoroge's youth is marked by shattered dreams, crushed under the heavy weight of colonial injustice. His growth is internal, characterized by intellectual and emotional awakening, but finally is disillusioned. For Njoroge, hopes once vibrated, but faded out through betrayal and violence. His youth does not become a symbol of triumph but a deferred dream of violence.

4.2 Memory: Sundiata versus Njoroge

In art tapestry, the role of the spoken word is culturally weaving. It powerfully serves as a means of educating by interlacing stories, values and history to preserve community identity, and understanding of their role where they live. This power of words is also perceived in African tradition. It does not only describe community life but also creates meaning within it. According to Mbele (2018), the word shapes a community's understanding of their world, culture and truth. He underscores that through epics, storytellers use words to connect genres such as myths, history and moral values. Hence, epic poems not only entertain but also serve as road maps that guide the community to remember their past.

4.2.1 Sundiata's Memory

Among other African epic poetry, Sundiata's story is a foundational and culturally rich literary form. Mbele (2018) posits that Epics serve as community historical archives, values, and identity as they preserve genealogies, heroic exploits, and ethics, and are often transmitted through generations by oral poets. Through the lens of narratology, readers are shown how the narrative's architecture, the prophecy, and the protagonist's heroic return hold together to shape the story's meaning. Indeed, Sundiata's epic revealed how the storyteller uses poetic language to connect Sundiata's miraculous birth, his founding of the Mali Empire, and moral values, including destiny, resilience and leadership.

In *Sundiata: the Epic of Old Mali*, Sundiata's early life powerfully reflects memory and tradition, especially within the framework of West African oral storytelling and cultural heritage. The story demonstrates how historians prophesize the birth of the hero. This preservation of the prophecy connects his childhood to a collection of memories of destiny and divine purpose (Niane, 2006). These griots, historians and custodians of cultural memory embed the story of Sundiata into the foundational myth of the Mali Empire, shaping identity through narrative (Conrad, 2010). Sundiata's physical weakness as a child is central to this myth. His inability to walk until he is seven is a powerful symbol of resilience and faith. Despite his early struggles, he carries within him an unwavering conviction to return, as reflected in his mantra of resilience and determination, "I will return, ...I will return..., I will return..." (Niane, 2006), embodying the collective hope of his people. His eventual triumph is remembered as both personal victory and cultural perseverance (Johnson, 1986).

Sundiata: An Epic of Old Mali depicts youth and identity formation. Sundiata is a young protagonist whose journey is primarily shaped by prophecy and oral tradition. His identity is reflected through the storytelling of the griot, connecting the hero to an ancestral legacy. For example, Kuyaté's words put it clearly, as he says, "I am a griot. It is I, Djeli Mamadou Kuyaté, son of Bintou Kuyaté and Djeli Kedian Kuyaté, master in the art of Eloquence. [...] By the spoken words, we bring to life the deeds and exploits of Kings for younger (Niane, p.1). These words, as spoken by the griot, show how storytelling connects youth to historical figures, shaping their identity through heroic examples. In the same vein, ancestral virtues serve as a tool for youth as future leaders to model themselves because, the griot says, "I teach the Kings the history of their ancestors so that the lives of the ancients might serve as examples. In fact, African history reveals that the son of a king was often trained to become one. Historically, a griot in West Africa held an important role as entrusted with educating royal heirs on history, ethics, and leadership, among other things.

Recent studies (Chhabi, 2020; Doornbos & van Binsbergen, 2014) underscore that African traditions, including royal education, are preserved and transmitted through rituals and oral narratives. In this vein, identity is shaped by cultural heritage, where youth are groomed within traditional landscapes to carry out leadership tasks. Thus, in precolonial Africa, oral education was essential, especially in royal families to train children in how to assume a



leadership role. The role of the griot storytelling implies that they were educators, historians, and political advisors to shape the identity and destiny of the future leadership of their kingdoms.

Thus, tradition is evidently embedded in the role of diviners and the oral transmission of Sundiata's story. It serves as a vessel for cultural continuity. The prophecy surrounding his birth, the symbolic naming of Jara, which means lion, and his quest through various kingdoms embody rituals, beliefs and storytelling customs that have been preserved and retold across generations. Conrad and Djanka (2004) and Kertzer (2025) echoed the same point highlighting that these practices reflect the enduring values of the Mandi people, linking individual destiny to communal heritage through griots' active role to responsibly preserve, protect, and pass down history. Consistently, Adebayo and Alabi (2025) assert that oral tradition holds a vital role within African societies. They serve not only as sources of entertainment but also as vehicles of value transmission. By honoring epic heroes, oral tradition inspires young towards excellence and societal ideals.

4.2.2 Njoroge's Youth and Memory

Unlikely, for a postcolonial surface reader, Njoroge is described as a schoolboy in colonial Kenya, full of dreams and innocence. His youth is defined through education, family ties, and hope for a better future as he believes it through these words, "... The land is dark now, but the future will be different [...] But one day the land will return to us. I work here waiting for that day" (Thiong'o, 1964). In light of postcolonial lens, he symbolically means a new beginning, a representation of break from the past. His education is seen as a rebirth for Kenyan society oppressed a great deal. He is the healer of these scars of colonial rule. Unfortunately, while "he had believed in the future, he now knew that there was no future" His youthful hope was shattered as he finally said, "I have lost everything- my education, my faith, and my family [...] I feel guilty. [...] Oh, God! But there was no God now. There was nothing. [...] He took the rope out of his pocket. He waited for the darkness... and now night covered him. The rope was ready. Hanging from the tree." He wanted to commit suicide which reflects a failure, disappointment, and disillusionment, but her mother saved him. That is why he feels guilty, as he said, "I am a coward" (Thiong'o, 1964: 79).

These words reflect memory on three levels. First, Njoroge's guilt and self-condemnation embody emotional memories, rooted in his father's request to care for the mothers in addition to his brothers' encouragement to wait for the new day. These recalled expectations, coupled with the painful memory of being saved by his mother, haunt him strongly. Second, his reflection on the loss of education, family, and faith underscores the collapse of his belief in the future. Moreover, his invocation of God and his subsequent denial of God's presence illustrate an existential memory, marking a spiritual crisis. Njoroge thus becomes a subject of traumatic recollection, where the memories of loss and failed expectations continue to shape his emotional and psychological state, which culminates in a suicidal plan. This character is predominantly portrayed through mental and relational processes, such as thinking, hoping, and dreaming, which emphasize his reflective nature (Mwinlaaru, 2012).

4.3 Implications

African writers often draw from storytelling techniques rooted in oral tradition (Irele, 2009). Within this context, epic and novel, though distinct, intersect thematically, mainly in their portrayal of transformation quests. The quest for transformation is one of these similarities. Drawing the formal and thematic parallel between epic and novel, studies (Bazimaziki, 2017b; Mullan, 2006) underscore that both forms are powerful literary mediums for reconstructing African history and reshaping identity through characterisation, conflict and cultural symbolism. By dramatising the tension between personal agency and historical forces, these stories reclaim cultural memory and affirm collective identity.

Both the protagonists in an Epic of Old Mali, and in a novel set in Kenya, reflect this framework. They represent how stories in African literature depict history and identity. According to Okiche (2018), these characters are archetypes which hold a didactic role. Through them, one can learn African cultural practices, people's challenges, and the way they lived or live. While Sundiata's journey ends in heroic fulfillment, Njoroge's quest for identity ends in disillusionment. Therefore, oral African tradition and fictional prose expose their audience to the power of literature in depicting the sociocultural situations of human beings in their settings (Woods, 2018). Consistently, this agrees with other findings by recent research in the same contentions (Kumar, 2023; Eslit & Villanueva, 2024) noting that storytelling serves as a powerful tool for transformation and empowerment for characters and readers to confront challenging circumstances, and find hope amidst despair.

V. CONCLUSION & RECOMMENDATIONS

5.1. Conclusion

This study explored the theme of youth at the crossroads of memory and history in African oral tradition and written novel. By analysing *Sundiata: An Epic of Old Mali* and *Weep Not, Child*, the study highlights that, narrative tradition, be it oral or written, is more malleable than it may initially appear. Albeit rooted in cultural memory and



history, it was found that these literary forms offer a space for personal transformation. Analysis of characters such as Sundiata and Njoroge revealed that African young protagonists engage with inherited legacies while reshaping their identities in light of their personal hurdles and socio-political upheavals.

Taken all in all, literature reveals aspects of reality by arranging its conventions in ways that prompt critical reflection. African oral tradition provides a cultural foundation while African literature serves as a compelling tool for reshaping society. Far from being a static vessel of tradition, storytelling emerges as a dynamic force that shapes and challenges young characters through the complex journey of transformation, growth, and resistance. Njoroge's hope is driven by his belief in education and liberation stories, while his ideals are shattered by colonial violence. Likewise, guided by oral prophecy, Sundiata rises from weakness to heroic leadership. Together, the two protagonists' quests underscore the enduring power of storytelling to mould identity, inspire growth, and propel the pursuit of justice across generations. While Njoroge is the voice of a fractured legacy, mourning a lost heritage, eroded by colonialism, Sundiata is by contrast the embodiment of cultural continuity, celebrating a lineage that survives triumphantly. Although separate in terms of centuries and genres, both stories advocate for the enduring African quest for dignity, justice and self-determination.

5.2 Recommendations

This literary study offers a comparative analysis of two authors' characters by juxtaposing an epic and a novel. The study can be recommended for students doing comparative literature. However, although it is strongly grounded in integrated theories, its scope is narrow as it focuses solely on two male protagonists in African literature. This scope can be broadened to include diverse African voices, female perspectives in particular.

Future research should also integrate other interdisciplinary and theoretical frameworks like cultural memory, psychoanalytical theory, and trauma theory, among others. Finally, the study recommends an exploration of evolving nature of African youth literature, and its transnational connection. A study of this kind can highlight the role of narrative flexibility in the reinterpretation of memory and identity in response to the changing societal realities.

Declaration of Interest

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Technical jargon simplification strategies in agricultural communication: A qualitative case study of Misungwi District, Mwanza, Tanzania

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ABSTRACT

This study investigates strategies for simplifying technical jargon in agricultural communication materials produced by the Tanzania Agricultural Research Institute (TARI) in Misungwi District, Mwanza Region, Tanzania. Employing a qualitative approach, including semi-structured interviews with 43 participants (peasants, extension officers, and officials) and text analysis of eight TARI leaflets, the study analysed communication strategies that enable the simplification of jargon. Guided by Text Comprehension Theory and Grice's Cooperative Principle, the findings reveal six key strategies: simplified language with analogies, translanguaging, definitions, synonyms, visual aids, and the involvement of peasants in content creation. These methods reduce cognitive load, enhance clarity, and promote the dissemination of inclusive knowledge. The Ministry of Agriculture and other stakeholders should train extension officers in participatory design and multimodal communication. The results will significantly improve agricultural extension effectiveness in resource-limited and multilingual contexts. The inclusion of peasants in communication crafting and translanguaging should be exploited to enhance proper understanding of the information. The study contributes to bridging expert-peasant gaps for sustainable development by encouraging a participatory communication model that enhances peasants' understanding of the information.

Keywords: Agricultural Extension, Communication, Simplification Strategies, Technical Jargon, Translanguaging, Tanzania

I. INTRODUCTION

Technical jargon in written communication creates significant constraints to understanding across multiple sectors, including healthcare, education, and technology. For instance, complex medical terms in patient information leaflets often prevent low-literacy individuals from following treatment instructions, while educational materials filled with academic jargon hinder student learning in diverse classrooms (Mayer, 2009). Similarly, Azari and Halimi (2018) and Jeklin (2018) investigated the impact of ambiguous language in healthcare communication, with a specific focus on antibiotic information leaflets. Their findings demonstrated that intricate sentence structures and scientific terminology significantly impeded patients' comprehension of the provided information.

Multilingualism, low literacy rates, and cultural-linguistic diversity in Africa are considered factors that lead to difficulties in understanding technical jargon. Studies in South African classrooms reveal that scientific and technical concepts taught solely in English exclude non-native speakers, but translanguaging and simplified language dramatically improve comprehension (Charamba, 2023; Makalela, 2022). Across the continent, health campaigns struggling with jargon have adopted visual aids and local language integration to enhance understanding. Equally, participatory approaches in community development projects ensure materials reflect users' prior knowledge and context (Park & Duncan, 2007; Besha et al., 2025).

Technical jargon in agricultural extension materials remains globally a significant barrier to the effective transfer and adoption of improved technologies among smallholder farmers, particularly in low-literacy and multilingual contexts. Studies across Asia, Latin America, and sub-Saharan Africa consistently show that when extension documents contain complex technical terms, farmers either ignore them or apply technologies incorrectly, increasing risks of crop loss and environmental harm (Gibson et al., 2023). Consequently, international organisations and researchers increasingly emphasise the need to deliberately simplify technical terms to bridge comprehension gaps and accelerate sustainable agricultural development worldwide (Park & Duncan, 2007). Although experts easily understand technical jargon, it frequently causes confusion for non-specialist readers (Mafu, 2001). In Zambia, for example, farmers from various linguistic backgrounds reported that technical jargon in agricultural input literature, such as terms related to



crossbreeding and fertiliser composition, led to misunderstandings and crop failures, highlighting the need for multilingual strategies (Jimaima, 2025). Correspondingly, in Ghana's Sudan savannah zone, farmers confront challenges in understanding technical language in climate information, aggravated by illiteracy, which restricts their capability to build resilient agricultural schemes (Antwi-Agyei et al., 2021). In South Africa, this matter extends to deaf farmers, where sign language lacks equivalents for agricultural technical jargon, hampering training and job opportunities in the sector (Magome, n.d.). Moreover, the dominance of Afrikaans in commercial agriculture creates exclusionary barriers for non-speakers, underscoring broader language inequities in the industry (Erasmus, 2021).

The technical jargon challenge is particularly evident in Tanzania's agriculture industry, where the Tanzania Agricultural Research Institute (TARI) disseminates scientific knowledge through leaflets to peasants (TARI 2019). Misungwi District is predominantly inhabited by Sukuma peasants with limited formal education and Kiswahili as a second language. TARI uses technical jargon in communicating agricultural information, which significantly impedes peasants from internalising the intended message (Mwogela & Sane, 2025). Mafu's (2001) study highlights the language difficulties confronted by agriculture students in disseminating agricultural technical information to farmers. Mafu stresses that students often struggle to use Kiswahili when explaining technical agricultural concepts to peasants, highlighting that technical jargon remains a challenge even for agricultural professionals. This matter prompted the current study, which investigates communication strategies for simplifying technical jargon in TARI leaflets, particularly given that most peasants have limited formal education. Mwogela et al. (2024) also notes that some translated terms related to farm implements fail to convey meaningful information to farmers.

These results are directly relevant to the evaluation of agricultural leaflets, which face significant obstacles due to technical terminology and complex language. In contrast to earlier research, this study presents a thorough exploration of communication strategies used in leaflets to simplify technical jargon that impedes peasants' understanding of agricultural content. It particularly examines the technical jargon simplification strategies used in TARI's leaflets to simplify the understanding of technical jargon in Misungwi District. The study combines textual and perceptual analysis in a Sukuma-dominant context to examine various jargon-simplification strategies. It also presents other communication strategies that are vital in simplifying communication. Understanding the simplification of technical jargon is essential for policymakers, researchers, and extension agents in enhancing peasants' understanding of agricultural information.

1.1 Research Objective(s)

This study explored various strategies for simplifying technical jargon in agricultural drawings from TARI leaflets. The study specifically identified strategies employed in TARI's leaflets to simplify technical jargon when communicating with peasants in Misungwi District of Tanzania.

II. THEORETICAL REVIEW

The study employed a dual data collection approach, analysing agricultural leaflets alongside semi-structured interviews with peasants, Ward Executive Officers (WEOs), and agricultural specialists, while interpreting the findings through the lenses of Text Comprehension Theory and Grice's Cooperative Principle. Text Comprehension Theory conceptualises reading as a staged cognitive process in which readers first recognise words and derive meaning from them. Further, meaning is retained in the reader's memory and subsequently applied in practice. The theory identifies three interconnected levels of mental representation: (i) verbatim representation (exact recall of wording, figures, and images), (ii) semantic representation (the core propositional meaning), and (iii) situational representation (linking the text to real-world contexts and prior knowledge) (Farina, 2014). These levels interact to enable complete comprehension: the verbatim level acts as an initial template, the semantic level preserves propositional content, and the situational level supports practical application. For rural farmers to successfully decode technical terminology, they must progress smoothly through all three levels to internalise and operationalise new agricultural knowledge.

Previous research has extensively validated the theory, demonstrating that prior knowledge, reading ability, and textual cohesion significantly enhance comprehension of scientific material (Oakhill, 2023), while text structure and background knowledge affect children's understanding (Kendeou & van den Broek, 2007; Oakhill, 2023). Complementing this framework, Grice's (1975) Cooperative Principle was applied, focusing on the maxims of quantity (providing neither too much nor too little information), manner (ensuring clarity, brevity, and avoidance of obscurity and ambiguity), and relation (maintaining relevance). These maxims served as critical criteria for assessing whether TARI uses various strategies in leaflets to simplify technical jargon adequately meet peasants' communicative needs. Numerous scholars have utilised Grice's framework to examine linguistic and literary phenomena (Abdi et al., 2010; Ephratt, 2012; Hossain, 2021; Mwogela & Sane, 2025; Yusro et al., 2020; Zor, 2006), consistently underscoring that violations of these maxims undermine effective communication, as evidenced in analyses of English and Turkish compositions.



III. METHODOLOGY

3.1 Participants

This study was conducted in the natural settings of the peasants in Misungwi District from January to December 2023. Data were collected from four wards of the district: Bulemeji, Mamaye, Idetemya, and Kijima. The participants included 28 peasants, 4 WEOs, 4 Misungwi District agricultural officials, 3 extension officers, and 4 officials from the Tanzania Agricultural Research Institute (TARI). Eight agricultural instructional leaflets were used to gather data. Convenience sampling was used to select peasants who were easily accessible to the researchers. Those found in their domiciles were provided with leaflets to read. According to Cohen et al. (2007:113), convenience sampling involves selecting the nearest available individuals as respondents.

This approach, however, has several weaknesses, which include selection bias, lack of randomisation, and limited generalisability. Similarly, sampling homogeneity, vulnerability to volunteer bias, and difficulty in assessing sampling error pose a challenge (Golzar et al., 2022). To address these weaknesses, the study included different key subgroups within the population. Peasants from different wards were included in the study to ensure a representative sample with all age groups. The selection of participants from different accessible wards and subgroups reduced sample homogeneity. Further, the study employed other sampling approaches to complement convenience sampling and provide context, thereby confirming the results.

Other respondents, such as WEOs, TARI officials, extension officials, and agricultural department officials, were purposively selected for their relevant expertise and potential contributions to the study. A total of 43 participants were included in the sample, which was deemed sufficient based on similar studies (e.g., Agunga and Manda, 2014; Alehegn, Ogola, and Spielman, 2010; Churi et al., 2012; Lonyangapuo, 2015; Meera et al., 2004; and Raouf and Bello, 2018).

3.2 Nature of the Data

Data were collected through semi-structured interviews and text analysis. The interview questions were derived from agricultural leaflets, which served as one of the data sources. A total of 20 questions were posed to different groups of respondents to gather insights on the strategies used to simplify technical jargon in agriculture. Some of the questions included: Do you access agricultural information through TARI leaflets? Do you face any challenges when accessing the information through leaflets? Do you think the use of technical jargon hindered your understanding? What is the specific jargon from the leaflets that is problematic to you? How do you manage to understand them? What ways do you think may enhance your understanding of jargon? Have you ever participated in the preparation of agricultural communications by TARI or the Misungwi agricultural department? These questions were designed to explore the strategies used in TARI's leaflets to simplify technical jargon when disseminating agricultural information. Additionally, text analysis was conducted on the leaflets to identify the technical jargon used to communicate agricultural information to peasants.

3.3 Data Collection Procedures

Communication strategies used to simplify technical jargon in agriculture were evaluated using data from interviews and textual analysis. As Walliman (2011) pointed out, "to gather data for text analysis, both written and non-written materials must be reviewed." Therefore, peasants were requested to identify any technical jargon they encountered when reading the leaflets. A tape recorder was used to capture their responses regarding the technical jargon and other communication-related challenges they faced when accessing agricultural information.

To ensure ethical standards were met, researchers sought permissions from relevant authorities, including the President's Office, Regional Administration and Local Government (Mwanza Region) (Ref No. AB.307/323/01/192; DA.137/372/01), and Misungwi District (AB.65/209/03/51). Further, peasants were provided with a consent form that outlined the study's objectives and expected outcomes. The researchers also informed the participants about the tools and devices that were used during data collection, and consent was obtained before recording any interviews. Throughout the research, the researchers ensured that participants' rights, interests, and preferences were respected, particularly regarding the reporting of data.

3.3.1 Leaflet Procurement and Distribution

The researcher anticipated finding peasants who already had agricultural leaflets home. However, this expectation proved futile as none of the peasants possessed the leaflets. TARI reported that most peasants either discard the leaflets or use them for packaging food and other items. TARI also highlighted that budget constraints hinder the production of enough leaflets for distribution. As a result, through TARI's assistance, the researcher decided to produce the leaflets and asked TARI officials to distribute them to peasants. The production was carried out by TARI officials,



and all standards were met to maintain the quality of the leaflets. Picture clarity, words, and colours used in the leaflets were handled with care during their production.

3.4 Data Analysis Procedures

Qualitative methods, such as interviews, text analysis, and non-participant observation, were employed to collect data in the study area. The study adopted a six-phase framework for thematic analysis to identify and analyse patterns and themes within the qualitative data collected, thereby providing valuable insights into the communication strategies used to simplify technical jargon in agriculture in Misungwi district. This six-phase framework includes familiarisation with data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and writing the report (Braun & Clarke, 2006). Further, Excel was used to code data into sub-themes and main themes. Thematic data analysis was employed to analyse information gathered through text analysis and interviews on communication strategies used to simplify technical jargon. These data were collected from leaflets and other sections of the respondents. Similarly, data were transcribed from Kiswahili and translated into English, while Excel was used for data organisation and coding. Gibbs (2012) defines coding as a way of indexing or categorising text to establish a framework of thematic ideas. Coding is a process that identifies a passage in the text or other data items (image), searches for and identifies concepts, and establishes relations between them. This process permitted the identification of themes and subthemes, which were vital in interpreting the research questions. Subsequently, content analysis was used to characterise the communication strategies used to simplify technical jargon in agriculture when disseminating agricultural information to peasants.

IV. FINDINGS & DISCUSSION

4.1 Findings

Data from interviews and text analysis revealed six key communication strategies to simplify technical jargon for peasants in Misungwi District. The following are the strategies: definitions, synonyms, simplified language and analogies, translanguaging, use of visual aids, and the inclusion of peasants in communication crafting. The results reveal that visual aids were the most commonly used technical jargon simplification strategy in the leaflets (7 of 8), followed by definitions (5 of 8), translanguaging (3 of 8), and synonyms (2 of 8). The table below summarises the findings.

Table 1

Summary of Findings on the Strategies Used to Simplify Jargon

Communication Strategy	Summary of Findings
Use of simplified language and analogies	Break down concepts using short sentences, basic vocabulary, and relatable comparisons (e.g., likening soil pH to sourness in food).
Translanguaging	Blend Kiswahili and local languages (e.g., Sukuma) fluidly to bridge gaps between technical and indigenous knowledge.
Definitions	Provide clear, straightforward explanations of technical terms in simple words to ensure understanding.
Use of Synonyms	Replace complex jargon with familiar, everyday words or local equivalents that peasants already know.
Use of visual aids	Employ diagrams, physical demonstrations, pictures, or local objects to illustrate abstract ideas concretely.
Peasants' inclusion in communication crafting	Involve peasants directly in creating messages, using their input, stories, and feedback to make content relevant and trustworthy.

Table 2 presents various technical jargon extracted from TARI leaflets that are deemed to create communication barriers between peasants and agricultural information disseminators. These technical jargons were generated through text analysis and semi-structured interviews with the respondents.

Table 2

Technical Jargon in Agricultural Leaflets that Is Difficult for Peasants to Understand

Jargon/vocabulary	Glosses	Jargon/vocabulary	Glosses
pH	A quantitative measure of the acidity or basicity	Utupa	Tephrosia vogelii
Viua magugu	Herbicides	Kitumba	Cotton fruit
Bioanuai	Biodiversity	Vimelea kuvu	Fungal parasites
Ukinzani	Resistance	Alikali	Alkaline
Udhibiti sango	Traditional pest control method	Mnyauko fuzari	Fusarium wilt
Nondo	Moth	Katena	Cartena

4.1.1 Use of Simplified Language and Analogies

Use of simplified language and analogies: The study found that 43 respondents recommended using simplified language and analogies to communicate agricultural information. They affirmed that the use of simplified language enhances peasants' understanding of information. These viewpoints, which all peasants expressed, are presented below in extracts 1-4.

"Mimi naona wajaribu kutumia lugha rahisi itakayotuwezesha sisi wakulima kuelewa vizuri. Kwa mfano nimeona maneno mengine ni magumu sana." 'I think they should try to use simple language that will enable us peasants to understand well. For example, I have seen some extremely difficult words.' (Interview with a male peasant at Kijima Ward on 8th September 2024)

"Hawa wakulima wetu lugha kwao ni tatizo ndiyo maana matumizi ya lugha rahisi yanahitajika ili kuwasaidia waweze kuelewa." 'For our peasants, language is a problem. That is why the use of simple language is needed to help them understand.' (Interview with an extension officer at Kijima Ward on 8th September 2024)

"Kwa kweli lugha kwa wakulima ni tatizo kubwa. Kuna wakati hata mikutano tunalazimika kutumia wakalimani ili waweze kuelewa. Nashauri wataalam wa kilimo kutumia lugha rahisi ili waweze kuelewa vyema." 'Honestly, language is a very big problem for farmers. Sometimes, even in meetings, we are forced to use interpreters so that they can understand. I advise agricultural experts to use simple language so that peasants can understand properly.' (Interview with a Ward Executive Officer (WEO) at Mamaye Ward on 10th September 2024)

"Sisi kama TARI kwa kweli matumizi ya maneno ya kitaalam yanaleta shida sana kwa wakulima wetu. Tunajitahidi kadri ya uwezo wetu kuyafanya maneno yawe rahisi ila ugumu bado upo. Ni muhimu kutumia misamiati rahisi kuweza kuwasaidia wakulima waelewe vizuri." 'We, TARI, know very well that the use of technical terms creates a lot of difficulty for our farmers. We try as much as we can to make the words simple, but the difficulty still exists. It is important to use simple terminology so that we can help the farmers understand well.' (Interview with a TARI official on 20th September 2024)

The responses presented above highlight the need for the agricultural experts and TARI in particular to use technical terms that enhance peasants' understanding of the communicated information. These terms would reduce communication and comprehension huddles peasants may experience when accessing agricultural information.

4.1.2 The Use of Translanguaging

Translanguaging: Blending languages available in the study area was among the strategies TARI used to simplify technical jargon used in leaflets to communicate agricultural information. Terms from ethnic languages, in this case, are employed to explain various agricultural information to enhance the clarity of the terms used, which ultimately improves understanding. Given that Misungwi is predominantly inhabited by the Sukuma people, whose Kiswahili is not their first and best language. This technique is vital in simplifying technical jargon to the peasants. The use of Kisukuma terminology such as *"kikungu, mbuga, itogolo, luseni, somi, and mabingobingo"* to explain soil types and other agricultural practices, aligns with the language of the peasants. Therefore, the technical jargon used can be easily simplified and understood by peasants as intended. The images depicted in Figure 1 are extracted from TARI's leaflets, which used translanguaging to simplify technical agricultural terms. The first image on the left uses ethnically known terms such as *kapulipuli, izumangiji, and mwarobaini* as remedies to control pests in maize. The image on the right employs a translanguaging strategy between Kiswahili and Kisukuma to inform peasants about soil types. For example, TARI used the terms *"Itogolo"* and *"udongo wa kichanga chenye tabaka gumu katika kina"* to mean "sandy soil with a hard layer at depth."

- Kapulipuli (mfinyo mmoja kwa mmea)
- Izumangiji (mfinyo mmoja kwa mmea)
- Mwarobaini (mfinyo mmoja kwa mmea)



4. Udongo wa kichanga chenye tabaka gumu katika kina ("Itogolo")

Sifa za udongo huu

1. Udongo wa juu ni kichanga tiftufu
2. Udongo wa chini ni kichanga mfinyanzi hadi mfinyanzi mweusi.
3. Unarutuba kiasi.
4. Unatabaka gumu la mfinyanzi ambalo huzuia maji kupenya haraka.
5. Unatuamisha maji kwa sababu ya kuwa na tabaka gumu.
6. pH yake ni ya tindikali hadi alikali
7. Hustawisha mazao mbalimbali, yakiwemo yanayohitaji kutuama kwa maji



Figure 1

Showing Images with Translanguaged Technical Terms

4.1.3 Appropriate Use of Definitions

Definitions proved instrumental in simplifying the technical jargon TARI used to communicate agricultural information to peasants. Five of the eight leaflets employed definitions to explain different agricultural concepts. The analysis revealed that definitions are used to avoid misinformation that may arise from the use of technical jargon. In the leaflets consulted, concepts like "kilimo mseto" 'mixed farming', "magugu" 'weeds', and "bungua wa mabua" 'stalk beetles' are adequately defined to simplify the technical jargon for the readers to grasp the communication intent. The terms employed in most definitions are simple to make the jargon easier for peasants to understand.



Yatambue Magonjwa Hatari ya Pamba na Udhibiti Wake Kwa Mavuno Mengi Zaidi



1. Mnyauko fuzari

- Ni ugonjwa unaosababishwa na vimelea vya Kuvu.

Namna unavyoenea

- Mbegu, Udongo, Zana za kilimo na masalia ya pamba.

Dalili za ugonjwa wa Mnyauko fuzari

- Majani ya mimea hubadilika rangi na kuwa ya manjano, hubabuka, kujikunja kama karai na kupukutika.
- Pamba huduma na kukauka.
- Ukipasua shina lililoshambuliwa, huwa na rangi ya



Figure 2

Showing the definition of Fusarium to Enlighten Peasants



The following is the definition of the extract above:

“Mnyauko fuzari: Ni ugonjwa unaosababishwa na vimelea vya kuvu” ‘Fusarium wilt: It is a disease caused by fungal pathogens.’

The following are some of the extracts 1-3 taken from other TARI leaflets to illustrate the definition as a technical jargon simplification technique:

“Bungua wa mabua ni wadudu waharibifu wa mahindi katika mikoa yote ya Kanda ya Ziwa. ‘Stalk beetles are maize pests around all Lake zone regions.’

“Kilimo mseto ni aina ya kilimo kinachoweza kuhusisha upandwaji wa miti, mimea ya mazao na wanyama huku lengo likiwa ni utunzaji wa mazingira pamoja na kuingizia mwananchi kipato au mkulima kipato.” ‘Mixed farming is a type of agriculture that involves the planting of trees, crops, and keeping animals while the goal is to protect the environment as well as generate income for a citizen or farmer.’

“Magugu ni nini? Magugu ni mimea inayoota sehemu isiyo hitajika.” ‘What are weeds? Weeds are plants that grow where they are not wanted.’

Similarly, other respondents noted diverse viewpoints on the use of definitions to simplify technical jargon used by TARI to communicate various agricultural information. One peasant from Bulemeji ward remarked the following:

“Nikisoma haya maelezo kuhusu walichoandika hapa angalau napata mwanga. Kwa hiyo ninaomba wataalamu wa kilimo wawe wanaambatanisha maana za haya maneno magumu.” ‘When I read these explanations about what they have written here, at least I get some understanding. I, therefore, request agricultural experts always to include the meanings of these technical words.’ (Interview with a female peasant from Bulemeji Ward on 20th September 2024)

Another respondent (TARI official) had the following viewpoints:

“Kutoa maana za maneno ya kitaalamu tunayoyatumia kwenye vipeperushi ni muhimu sana kuwawezesha wakulima kuelewa maana ya ujumbe wetu kwao.” ‘Providing the meanings of the technical terms we use in leaflets is very important so that farmers can understand the actual message we are conveying to them’ (Interview with a TARI official on 9th September 2024)

The extension officer on the same matter remarked the following:

“Mimi kama afisa kilimo naona ni muhimu kwa watoa jumbe za kilimo kutumia definitions ili kurahisisha uelewa wa maneno ya kitaalam wanayoyatumia kwenye mawasiliano.” ‘As an agricultural officer, I feel it is important for those who deliver agricultural messages to use definitions in order to make it easier to understand the technical terms they use in communication’ (Interview with an extension officer from Bulemeji Ward on 20th September 2024)

Similarly, the Ward Executive Officer contributed the following:

“Mimi nafikiri ni muhimu kuwa na tafsiri za maneno magumu yanayotumika kwenye hivi vipeperushi kwa maana wakulima wetu wengi elimu zao ni za chini.” ‘I think it is important to have explanations of the difficult words used in these leaflets because most of our farmers have low levels of education’ (Interview with the Ward Executive Officer (WEO) from Idetemya Ward on 30th September 2024)

4.1.4 Simplification Through the Use of Synonyms

The study revealed that the use of synonyms facilitated the simplification of technical jargon in leaflets. This strategy was employed to simplify the use of jargon and enhance understanding of the information. The synonyms used were extracted from two TARI leaflets for more clarification.

“Rutuba (naitrojeni) huongezeka kwenye udongo hivyo hupunguza gharama za mbolea.” ‘Soil fertility (nitrogen) increases in the soil, thereby reducing fertiliser costs.’

“Baada ya wiki 3 mpaka sita kata desmodium ili isibanane (isiingiliane) na mimea ya mahindi.” ‘After 3 to 6 weeks, cut back the desmodium so that it does not interfere with the maize plants.’

“Tumia mbinu ya sukuma-vuta ili upate mavuno mengi ya mahindi kwa kuzuia mabuu (funza) wa mabuu pamoja na kiduha” ‘Use the push-pull method to get a higher maize yield by controlling stem borers and striga’

I observed that TARI employed synonyms to simplify the technical jargon used in communicating agricultural information to peasants. For example, synonyms such as *“naitrojeni”* ‘nitrogen’ and *“rutuba”* ‘fertility’, *“funza”* ‘worms’ and *“mabuu”* ‘larvae’, *“changanya”* ‘mix’ and *“vuruga”* ‘stir’ are used to enhance peasants’ understanding of the technical jargon.

4.1.5 The Use of Visual Aids

The study found that TARI used visual aids, such as pictures and physical demonstrations (demo-plots), which facilitated simplifying technical jargon for peasants. Respondents affirmed that the use of visual aids greatly simplified the jargon used in the leaflets to communicate agricultural information. Seven out of eight leaflets used pictures to convey information to peasants. The images in Figure 3, for example, show the affected maize grains and how manure can be applied in the field. These images are vital for supplementing the written communication in the leaflets and enhancing peasants’ understanding of the conveyed information, even when they face technical language constraints in comprehending it.

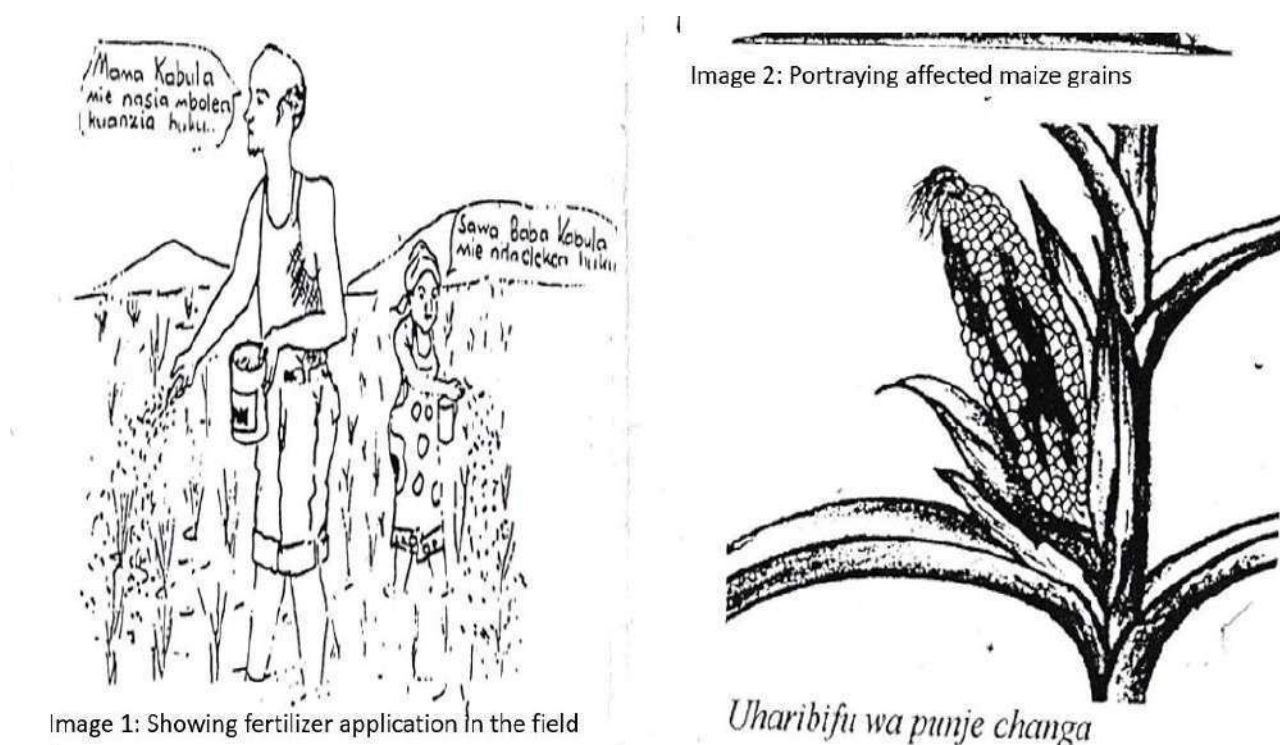


Figure 3

The Images Showing the Application of Manure and the Affected Maize Grains

The remarks below, from respondents, demonstrate how visual aids are significant in simplifying the technical jargon used to communicate scientific information.

“Picha hizi ni nzuri kutupa uhalisia hata kama neno ni gumu basi tunaangalia picha na kuelewa.” ‘These pictures are good because they show us the real situation. Even if the word is difficult, we just look at the picture and understand.’ (Interview with a male peasant from Bulemeji Ward on 20th September 2024)

“Nikiona picha napata uelewa kwa kweli hata kama maneno siyajui ila uelewa naupata vizuri.” ‘When I see the picture, I really understand. Even if I don’t know the words, I still get a good understanding.’ (Interview with a peasant from Idetemya Ward on 26th September 2024)

“Picha hizi tunazitumia kwenye vipeperushi ili kuwezesha hawa wakulima wapate uelewa mzuri. Lakini picha inaweza ikasaidia mkulima kupata ujumbe wa neno Fulani na hivyo kuelewa ujumbe.” ‘We use these



pictures in the leaflets to help peasants gain a good understanding. A picture can help a peasant grasp the meaning of a certain word and thus understand the whole message.’ (Interview with an extension officer from Kijima Ward on 20th September 2024)

“Sisi kama TARI picha ni muhimu sana kusaidia kuelezea maneno ya kitaalam kwenye mawasiliano yetu. Hivyo tunazitumia kwa umakini ili ziweze kumrahisishia mkulima kuelewa maana ya maneno tunayoyatumia.” ‘For us at TARI, pictures are significant in helping to explain technical terms in our communication. That’s why we use them carefully so that they make it easier for the farmer to understand the meaning of the words we use.’ (Interview with a TARI official on 30th September 2024)

4.1.6 Peasants’ Inclusion in Communication Crafting

Peasants’ inclusion in communication crafting: The study revealed that peasants were involved in the process of creating communication content. This was reported by TARI officials as a way to simplify technical jargon for peasants. However, this strategy was inadequately employed due to financial constraints, although it was hailed as vital in enhancing peasants’ understanding of scientific jargon. Similarly, peasants who were interrogated reported not having been involved in all stages of crafting the communication contents. The following are the remarks from the respondents who were asked about:

One agricultural official from the Misungwi agricultural department remarked the following:

“Kwa kweli huwa tukitengeneza vipeperushi tunaviweka kwenye ubao wa matangazo ili wakulima wavione na waweze kutoa mapendekezo yao.” ‘Indeed, when we create flyers, we place them on the notice board so that farmers can see them and provide their suggestions.’ (Interview with Misungwi department agricultural official on 16th September 2024)

A female peasant from Mamaye had the following viewpoints:

“Kwa kweli ushirikishwaji ni mdogo sana pengine ungesaidia zaidi kujua haya mawasiliano.” ‘Indeed, the involvement is very minimal; perhaps it would help more to know about these communications.’ (Interview with a female peasant at Mamaye Ward on 25th September 2024)

Similarly, a TARI official remarked the following:

“Hawa wakulima tunawashirikisha japo kwa kiwango kidogo sana. Kwa maana mara nyingi hizi tafiti ni za kisayansi sana na hufanyiwa kwenye magrupu.” ‘We involve these farmers, albeit to a very small extent. Because most of the time, these studies are very scientific and are conducted in groups.’ (Interview with a TARI official on 30th September 2024)

4.2 Discussion

This part discusses the findings on simplifying technical jargon through different communication strategies. The study revealed six factors instrumental in simplifying technical jargon when used to communicate agricultural information. These simplification strategies include the use of definitions, synonyms, simplified language and analogies, translanguaging, visual/hands-on aids, and the inclusion of peasants in communication crafting.

The use of simplified language and analogies aligns with text comprehension theory by reducing cognitive load at the surface level, enabling peasants to build accurate textbases and situation models (Kintsch, 1998). For instance, describing pesticides as “insect’ killer’ and soil pH as “soil sourness” offer acquainted analogies to integrate new information with everyday knowledge, facilitating deeper understanding. Based on respondents’ viewpoints, when leaflets employ simplified language and analogies that are suitably practical and highly contextualised, they enable users to understand technical jargon effortlessly. Respondents, including peasants, Ward Executive officers (WEOs), TARI officials, and extension officers, highlighted how complex terms create comprehension difficulties, echoing findings that jargon impedes propositional integration among rural peasants and audiences (Mwogela & Sane, 2025). From Grice’s viewpoint, this strategy supports the maxim of manner by avoiding obscurity and promoting clarity, as technical experts, like TARI officials, highlighted the need to use simple vocabulary to accommodate peasants’ literacy levels. The literature emphasises that simplifying language enhances knowledge transfer, particularly in low-literacy contexts, thereby reducing misapprehensions that undermine the quality maxim (Gibson et al., 2023).

Translanguaging, blending Kiswahili with Kisukuma terms like “*Itogolo*” ‘sandy soil with a hard layer at depth’ for soil types, supports text comprehension by drawing on peasants’ multilingual repertoires to construct situation models rooted in cultural context (García & Wei, 2014). In Misungwi, where Sukuma is the dominant language and Kiswahili plays a secondary role, this approach resonates with readers’ linguistic characteristics by simplifying jargon and improving message clarity. Translanguaging, as a linguistic resource, when properly combined with visual aids,



produces a complete picture of what is anticipated by practitioners. The former will be responsible for providing linguistic clarification of the phenomenon, while visual aids will reinforce understanding. Text comprehension theory views this as enhancing semantic representation through familiar codes, allowing better integration of agricultural practices (van Dijk & Kintsch, 1983). Grice's cooperative principle is apparent here, as translanguaging ensures relevance (relation maxim) and brevity (manner maxim) by using ethnically resonant terms, evading the ambiguity of monolingual technical discourse. African-based literature strengthens this: in South African multilingual classrooms, translanguaging scaffolds scientific concepts, improving comprehension and epistemic access in contexts similar to Tanzania's rural settings (Charamba, 2023). Similarly, Ubuntu translanguaging in diverse African education promotes inclusive meaning-making, aligning with cooperative communication by appreciating communal linguistic resources (Makalela, 2022). The same phenomenon is reported by Mwogela et al. (2024), who found that translanguaging helped peasants understand the communicated information.

Definitions and synonyms further aid comprehension by clarifying technical jargon, such as "*kilimo mseto*" (mixed farming), through explicit explanations and alternatives (e.g., "*funza*" for larvae). Based on text comprehension theory, definitions build vigorous textbases by resolving ambiguities, while synonyms provide redundancy for situational integration, especially for low-education peasants (Kintsch, 1998). Respondents, such as a female peasant from Bulemeji, emphasised that definitions help them reduce misinformation. Grice's maxims are realised in this context, whereby definitions fulfil quantity (adequate information) and manner (clarity), while synonyms prevent obscurity, as seen in TARI leaflets' use of synonyms like "*naitrojeni*" and "*rutuba*". Research in agricultural communication confirms that such strategies mitigate jargon barriers, enhancing cooperative exchanges in extension materials (Mwogela & Sane, 2025; Park & Duncan, 2007).

Visual aids were employed in seven of eight leaflets to support language restrictions, primarily to enhance multimodal comprehension. Visual aids are vital in giving further clarification to enhance and simplify the understanding of technical jargon. Baker and Adams (2015), Devkota et al. (2020), and Paul (1956) assert that visual aids enhance attention and necessitate a short time to evoke instant emotions and understanding in readers' minds about the matter of communication. The use of visual aids plays an instrumental role in guiding agricultural extension officers to peasants, as they are a language peasants understand. Text comprehension theory extends to multimedia, where visuals aid situation model construction by providing concrete representations that integrate with text (Mayer, 2009). Peasants reported that pictures offer reality, something that helps in decoding jargon even without full literacy. This aligns with Grice's relation maxim, as relevant images ensure messages are pertinent and cooperative. The literature on peasants' education demonstrates that visual aids enhance recall and use in agriculture, particularly for visual learners in resource-poor settings (Park & Duncan, 2007; Gibson et al., 2023).

Finally, peasants' inclusion in communication crafting, though limited by financial constraints, represents participatory principles that enhance understanding through co-creation. Inclusion is vital to the effectiveness of analogies and synonyms used in communication. Peasants, if included in early stages of communication crafting, get acquainted with the agricultural terms used together with their meanings. The process offers peasants the opportunity to suggest analogies or synonyms that may work better in their settings. Text comprehension theory suggests involving users ensures materials align with their prior knowledge, facilitating better model building (van Dijk & Kintsch, 1983). Grice's cooperative principle is realised in dialogic processes, where responses maintain the quality and relation maxims. TARI and Misungwi District agricultural officials' partial involvement (e.g., the use of notice boards) shows potential, but peasants expressed inadequate engagement. Studies highlight that participatory communication in agriculture empowers stakeholders, reducing power imbalances and improving relevance, as seen in Ethiopian contexts where inclusivity facilitated equitable dialogues (Besha et al., 2025). The inclusion of peasants, therefore, simplifies technical jargon, leading to improved comprehension and use of information among them.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study highlights strategies necessary for simplifying technical jargon in agriculture during the dissemination of agricultural information, drawing on Grice's Maxims of communication and Farina's Text Comprehension Theory. It identifies the factors employed in TARI's leaflets to simplify technical jargon when communicating agricultural information. These factors include: simplified language, translanguaging, clear definitions, the use of synonyms, visual aids, and the inclusion of peasants in crafting agricultural communication content. These strategies reduce cognitive load, simplify technical jargon, and foster inclusive communication for a better understanding of the information. Embracing human-centred, linguistically designed communication is crucial for effective information interpretation, which ultimately leads to sustainable agricultural development.



5.2 Recommendations

The study recommends TARI and other agricultural stakeholders to systematically use translanguaging, compulsory visual illustrations, simplified language, and analogies. Further, the study endorses inclusive participatory communication design that involves peasants at all stages to ensure technical language is comprehensible, relevant, and actionable. TARI and other agricultural stakeholders should have a dedicated language and communication department necessary for refining language and other communication-related issues. This ensures proper comprehension and use of the communicated information by peasants, promoting agricultural productivity.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Assessing the influence of succession planning on long-term success in selected organizations in Arusha City, Tanzania

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ABSTRACT

This study assessed the influence of succession planning practices on long-term organizational success in Arusha City, Tanzania. The study adopted a cross-sectional research design, comprising 375 respondents in Arusha City. The sampling techniques used were stratified and purposive sampling techniques to obtain a diverse representative sample. The study utilized a closed-ended questionnaire to collect data from the respondents. The collected data were analyzed descriptively and inferentially by means of SPSS Version 26.0 software. The study was guided by the resource-based view and human capital theories; the findings revealed that 201 (53.6%) of the respondents perceived low implementation of succession planning. Findings further indicate a moderately strong positive relationship ($R = 0.552$), with succession planning accounting for 30.4% of the variance in organizational success. Regression analysis showed a significant positive effect ($\beta = 0.521$, $p < .001$), indicating that effective succession planning fosters leadership continuity, career advancement, and the attainment of organizational objectives. This study concludes that succession planning practices are low in surveyed organizations. Based on these findings, this study recommends that organizations should develop good succession planning practices, develop leaders, and provide mentorship programs to realize long-term organizational success.

Keywords: Leadership Development, Leadership Continuity, Organizational Success, Succession Planning

I. INTRODUCTION

Globally, succession planning has gained attention in the field of human resource management because it is the determinant for organizational success in various aspects, including leadership continuity and developing staff talents (Groves, 2007; Rothwell, 2010). Organizations with well-established succession planning practices demonstrate greater adaptability, institutional resilience, and leadership stability that are essential for their long-term success. Through adhering to succession planning practices, employees' talents are Organizational Success identified, enhancing effective mentorship and coaching, and preparing future leaders, leading to a reduction of risks associated with unexpected leadership changes.

Indeed, organizations that lack effective succession planning are likely to face leadership challenges, reduced organizational performance, and failure to meet the pre-set vision and mission (Thakur, 2022). Thus, succession planning is an essential aspect of practice that can influence organizational performance and sustainability. In the African context, effective implementation of succession planning is a challenge because of inadequate of skilled personnel, inadequate leadership development programs, and a high dependency on an individual's ability to lead (Owusu-Acheampong et al., 2024).

The long-term organizational success reflects the capacity of an organization to be in achievement in its pre-set strategic goals, maintain daily operational stability, and continued growth over a period of time (Batoool et al., 2022). It encompasses the organization's ability to maintain smoothness of organizational day to day operations that may include leadership continuity, innovation, employee motivation, and overall organizational resilience. Long-term success depends not only on financial performance but also on leadership effectiveness, talent retention, and the ability to adapt to overhanging environments (Maroga et al., 2024). In this regard, embracing succession planning practices acts as a driver of reaching long-term success by building internal capacity and reducing disruptions associated with leadership alterations (Ugoani, 2020).

Like other countries in the world, organizations in Tanzania are increasingly acknowledging the significance of effective implementation of succession planning practices for enhancing performance and service provision. However, studies like Mohamed (2022) and Urassa (2024) have shown that organizations in Tanzania have no clear succession planning practices. This has led to leadership challenges, weak talent retention, and a loss of expertise when competent/senior leaders exit from an organization (Kpinpuo et al., 2023; Wangari et al., 2023). Furthermore, studies



also revealed few organizations in Tanzania incorporate succession planning practices to enhance organizational performance for continued growth.

Moreover, available studies based on assessing challenges facing effective implementation of succession planning in organizations (Muhoho, 2014), factors that influence effective implementation of succession planning in small and medium enterprises (Magasi, 2016), assessed the implementation of succession planning and performance of family-owned small and medium enterprises (Kiwia et al., 2020), and succession planning practices among selected government authorities (Urassa, 2024). Therefore, the current study aimed to assess the influence of succession planning on long-term organizational success in Tanzania. The findings have implications for policymakers, managers, and HR practitioners because they provide evidence-based insights on the effect of proper adherence to succession planning practices on the success of an organization. This is because it highlights the extent proper use of succession planning can empower staff with leadership skills through in-service development. Additionally, it highlights the rationale of mentorship and internal talent management to foster the continued functioning of an organization.

1.1 Statement of the Problem

Succession planning is increasingly being recognized as a critical human resource management practice that ensures healthy leadership continuity, talent development, and sustainable organizational performance in both public and private sectors. Despite this recognition, evidence suggests that many organizations in Tanzania, including public institutions, face persistent challenges in effectively implementing succession planning frameworks. Over 45% of public organizations in Tanzania lack formal succession plans, resulting in leadership gaps (Ndunguru, 2018).

While previous studies (Kiwia et al., 2020; Iribagiza, 2025; Asande et al., 2023; Alheet, 2025) have identified effects, roles, and impacts of succession planning practices, there is limited empirical evidence on how these practices influence long-term organizational success in the Tanzanian context. Therefore, this study assessed the influence of succession planning practices on long-term organizational success.

1.2 Research Objectives

- i. To examine the extent to which succession planning practices are implemented in Arusha City.
- ii. To investigate the influence of succession planning on long-term organizational success in Arusha City

1.3 Research Questions

- i. To what extent do succession planning practices implemented in Arusha City?
- ii. What is the influence of succession planning on long-term organizational success in Arusha City?

II. LITERATURE REVIEW

2.1 Theoretical Review

This study was grounded in the Resource-Based View (RBV) Theory (Barney, 1991) and the Human Capital Theory (Becker, 1964). The RBV Theory views that, to maximize organizational success, leaders need to utilize the available resources. The resources among others, include identifying and developing staff's talents because this could drive innovation and leadership growth for personal and organizational benefits. The RBV theory describes that the effective implementation of succession planning practices helps organizations identify, nurture, and retain future leaders who function as potential resources.

On the other hand, Human Capital Theory (Becker, 1964), which emphasizes investing in training and professional development to optimize employees' productivity and organizational success. The Human Capital Theory states that employees' knowledge and skills represent a form of wealth that produces long-term success for individuals and organizations. In this study, the theory supports the assertion that succession planning is an investment in human capital because it focuses on pre-planning in various aspects including in-service training, mentorship and coaching prepare future leaders. Initiatives like mentoring employees and providing leadership skills are likely to strengthen organizational operations, leading to long-term success. The use of these theories is essential because the RBV theory expounds the significance of human resources as a source of viable advantage, while the Human Capital Theory concerns how succession planning helps human resources to attain intended organizational objectives.

2.2 Empirical Review

Mehrabani and Mohamad (2021) investigated factors that influence the effective implementation of succession planning in Iran. The study adopted a qualitative research approach where interview as a data collection method was employed to collect data in private banks. The findings revealed that succession planning was highly influenced by several factors including creating a positive vision, organizational cultures, training, and management, among others.

However, the findings by Mehrabani and Mohamad (2021) were subjective because they heavily relied on single data collection tools.

In Jordan, Alheet (2025) assessed the role of corporate governance and succession planning in the sustainability of the family-owned businesses. The main purpose of the study was to identify corporate governance and succession planning roles and their contributions to the survival of the surveyed enterprises. The findings revealed the existence of good corporate governance and succession planning practices. Additionally, the succession planning practices had a positive effect on enterprises' growth because they ensured enterprises' sustainability.

Kpinpuo et al. (2023) in Ghana investigated succession planning practices and knowledge of management officials in selected organizations. The study employed a qualitative research approach where a total of 60 participants were interviewed. The findings revealed low implementation of succession planning and limited knowledge among the participants in selected organizations. These findings suggest that effective succession planning practices were not implemented effectively, as evidenced by poor organizational performance.

Asande et al. (2023) investigated the effect of procurement planning on organizational performance in Kenya. The study employed a quantitative research approach, utilizing a cross-sectional design. Data were collected through a questionnaire from the 35 respondents. Guided by the system theory, the study revealed that procurement planning had a positive effect on procurement function performance. The study recommends proper planning of procurement operations, as this could lead to effective functioning of the organizational performance. In fact, the study by Asande et al. (2023) has provided the insights that have implications for the procurement practitioners, but its limitation resides in the use of a small sample size ($N=35$) that could limit generalization to other contexts.

Iribagiza (2025) investigated the effect of program planning practices on program performance in Rwanda. The study was conducted using a mixed-methods research approach, involving a questionnaire and an interview as data collection instruments. The findings from the 97 participants revealed that project planning practices contributed to program performance in the surveyed area. These findings suggest that effective planning could be associated with success.

Kiwiia et al. (2020) investigated the impact of succession planning practices on the performance of family-owned small and medium enterprises (SMEs) in Tanzanian contexts. The study utilized a cross-sectional research design, involving a total of 219 respondents. They used only an open-ended questionnaire to gather data. The findings revealed the presence of succession planning in SMEs. The study further revealed differences in business operations. In the same vein, Magasi (2016) investigated factors that influence the effective implementation of SMEs. The study involved 25 SMEs, where a total of 104 participated in the study. The findings found that higher age of SMEs' leaders was among the influencing factors for succession planning. Additionally, the level of education affected the preparation of successors in the surveyed area. The findings by Magasi (2016) suggest that to effectively implement succession planning, there must be prior-existing conditions. Based on the reviewed empirical studies, none of them investigated the influence of succession planning on long-term organizational success. Therefore, this study filled the identified research gap by assessing the influence of succession planning practices on long-term organizational success.

III. METHODOLOGY

This study adopted a quantitative research approach where a cross-sectional research design was employed to assess the influence of succession planning on long-term organizational success in Arusha City, Tanzania. The choice of this area was due to its rapid economic growth and strategic importance as a hub for tourism, trade, and regional cooperation compared to other regions in Tanzania (United Republic of Tanzania [URT], 2019). This could provide a variety of contexts for assessing succession planning practices. Additionally, there is a workforce mobility of employees that could lead to obtaining comprehensive findings. Out of 6000 target population, 375 respondents were selected from five areas: Arusha City Council, Tanzania Environmental Conservation Society, CRDB Bank, NMB Bank, and St. Augustine University of Tanzania. The study sample comprised employees from the aforementioned five areas to obtain comprehensive insights into the problem. The Yamane formula was used to compute the study sample as follows:

$$n = \frac{N}{1 + Ne^2}$$

n = Sample size,

N = Total number of accessible population (6,000),

e = Sampling error ($e = 0.05$)

$n = 375$

The data collection was through a closed-ended questionnaire, distributed to respondents selected through stratified random and purposive sampling techniques. Stratified sampling was used because the respondents were grouped based on organization type and leadership position. The purposive sampling techniques were also used to obtain respondents (managers) who could provide relevant information about the leadership roles.



The collected data were analyzed by means of SPSS version 26.0, where descriptive statistics (frequencies, percentages, means, and standard deviations) and inferential statistics (simple linear regression) were computed. Before analysis, all assumptions, including linearity, normality, multicollinearity, and homoscedasticity, were tested and satisfied. To ensure the validity and reliability, the questionnaire was developed by the researcher based on existing literature on succession planning practices and reviewed by three experts in the Department of Human Resource Management at the Institute of Accountancy Arusha. Then it was piloted with 100 respondents who did not participate in the actual study. Additionally, the final instrument had a Cronbach's alpha of 0.85, confirming high internal consistency for the use (Creswell, 2018).

IV. FINDINGS & DISCUSSION

4.1 Characteristics of the Respondents

This study comprised 375 respondents, 210 (56%) male and 165 (44%) female. The majority of respondents (42%) were aged from 31 to 41 years, followed by 28% (42–52) years, and 30% (20–30) years. In terms of educational qualification, 180 (48%) held a bachelor's degree, 120 (32%) a diploma, and 75 (20%) a postgraduate degree. Furthermore, 160 (43%) respondents had 5 to 10 years of work experience, 125 (33%) had 11 to 16 years, and 90 (24%) had less than 5 years of work experience. Moreover, this study involved respondents with a mix of managerial and non-managerial staff to obtain comprehensive insights and representation of sampled organizations in Arusha City. The demographic information is shown in Table 1.

Table 1

Demographic Information of Respondents

Variable/Aspect	Category	Frequency (n)	Percentage (%)
Gender	Male	210	56
	Female	165	44
Age	20–30 years	112	30
	31–41 years	158	42
	42–52 years	105	28
Educational Qualification	Diploma	120	32
	Bachelor's degree	180	48
	Postgraduate degree	75	20
Work Experience	Less than 5 years	90	24
	5–10 years	160	43
	11–16 years	125	33

4.1.1 Level of Succession Planning Practices

The first objective of this study was to examine the extent to which succession planning practices are implemented in Arusha City. Before computing the level of succession planning practices of an individual item, the overall level of succession planning was computed. The findings revealed that a majority of respondents, 201 (53.6%), perceived the succession planning practices in their organizations as being at a low level. The findings for each item are shown in Table 2. Note: N = 375, SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree, Std = Standard Deviation, and Int = Interpretation.

The findings indicate that the overall mean scores for succession planning practices were 2.48. The items whose mean scores are below the overall mean score imply low-level implementation of the succession planning practices. Whereas, mean scores above the overall mean score suggest high implementation of the particular succession planning practices. Based on Table 1 revealed low implementation was revealed in the items of HR responsiveness to change, knowledge dissemination, coaching, and top management commitment, received. Furthermore, this study revealed high implementation in the areas of systems for replacing senior staff, leadership mentoring, talent development programs, and recognition of dormant talent.

The findings suggest that, despite the existence of leadership practices, overall, the implementation of succession planning practices in selected organizations was low. Inability to provide mentorship, coaching, and not developing employees' talents suggests that employees are not prepared for future leadership roles. The present findings support the previous findings by Owolabi and Adeosun (2021), who reported in a Nigerian context that leaders did not support employee career development, which led to failure in preparing leaders. In fact, the absence of career development among employees demotivates employees professional growth, leading to failure to achieve the organizational mission and vision (Olayo, 2019). However, the current study's findings contradict the findings by Batool et al. (2022), who revealed a high level of succession planning practices in Pakistan. That study found that selected

organizations demonstrated effective commitment to employee development, career progression, and greater alignment with long-term goals of the organizations.

Table 2

Succession Planning Practices

S/N	Statement	SD (%)	D (%)	N (%)	A (%)	SA (%)	Mean	Std.	Int
1	The HR keeps in step with changes and ensures the right people are readily available to the organization	25.6 (96)	34.9(131)	20.0(75)	12.0(45)	7.5(28)	2.41	1.2	Low level
2	There is good knowledge dissemination in the organization	25.3 (95)	37.6(141)	21.1(79)	11.2(42)	4.8(18)	2.33	1.12	Low level
3	There exists a system of replacement for senior departing management	25.0(93)	30.0(113)	22.0(83)	15.0(56)	8.0(30)	2.51	1.24	High level
4	The organization provides adequate coaching to develop future leaders	25.3(95)	36.0(135)	18.7(70)	13.3(50)	6.7(25)	2.40	1.19	Low level
5	Leaders in my organization actively mentor and prepare potential successors	24.0(90)	34.7(130)	17.3(65)	14.7(55)	9.3 (35)	2.51	1.26	High level
6	The organization provides learning and training opportunities that are futuristic and tied to strategic development goals	25.7(96)	33.3(125)	19.7(74)	13.3(50)	8.0(30)	2.45	1.23	Low level
7	There is a program set aside for talent development, and it has been implemented	22.3(84)	30.7(115)	21.3(80)	15.0(56)	10.7(40)	2.61	1.28	High level
8	The management is committed to encouraging new talent	27.2(102)	36.8(138)	18.9(71)	10.4(39)	6.7 (25)	2.33	1.17	Low level
9	Talent in the organization lies dormant due to poor talent management systems	17.6(66)	27.2(102)	25.6(96)	18.7(70)	10.9(41)	2.79	1.25	High level
Overall Weighted Mean							2.48		

4.1.2 Long-Term Organizational Success

The second objective of this study was to assess the influence of succession planning on long-term organizational success. Before assessing the influence of these variables, the level of long-term organizational success was computed. The findings are indicated in Table 3.

The findings indicate a low level of long-term organizational success, low success/performance among selected organizations. The items that had a high rate were: encouraging creativity and innovation ($M = 2.70$), providing in-service training opportunities ($M = 2.74$), and effective utilization of resources ($M = 2.67$). Conversely, there were low perceptions in the items: employee involvement in planning ($M = 2.27$), career progression and mentorship ($M = 2.40$), and transparency and accountability ($M = 2.49$), suggesting weaknesses in participatory management and organizational development practices.

Table 3.*The Level of Long-Term Organizational Success (N=375)*

S/N	Statement	SD (%)	D (%)	N (%)	A (%)	SA (%)	Mean	Std.	Int
1	My organization allocates and utilizes available resources	20.0 (75)	28.3 (106)	25.9 (97)	16.8 (63)	9.1 (34)	2.67	1.18	High level
2	My organization has a budget to achieve its pre-set plans	23.2 (87)	33.1 (124)	22.1 (83)	14.1 (53)	7.5 (28)	2.50	1.17	Low level
3	My organization has a well-defined career progression and mentorship programs	24.5 (92)	31.7 (119)	21.9 (82)	13.6 (51)	8.3 (31)	2.40	1.21	Low level
4	My employer engages employees in planning organizational activities	19.7 (74)	29.3 (110)	24.3 (91)	17.6 (66)	9.1 (34)	2.27	1.23	Low level
5	The organization maintains transparency and accountability in its daily activities	17.9 (67)	25.6 (96)	26.9 (101)	19.7 (74)	9.9 (37)	2.49	1.22	Low level
6	My organization manages succession and leadership continuity	21.1 (79)	28.0 (105)	23.5 (88)	17.9 (67)	9.5 (36)	2.66	1.19	High level
7	The organization has a long-term succession planning	24.0 (90)	30.9 (116)	22.1 (83)	14.9 (56)	8.0 (30)	2.51	1.20	Low level
8	The organization encourages me to be creative and innovative	20.3 (76)	27.5 (103)	24.5 (92)	18.1 (68)	9.6 (36)	2.70	1.21	High level
9	I am encouraged to upgrade my skills through in-service training	18.9 (71)	26.7 (100)	25.6 (96)	19.5 (73)	9.3 (35)	2.74	1.18	High level
Overall Weighted Mean							2.55		

Furthermore, the simple linear regression was computed to assess the influence of succession planning on longer-term organizational success. The dependent variable was long-term organizational success, measured using nine items with a five-point Likert scale, from 1 (Strongly Disagree) to 5 (Strongly Agree). A simple linear regression analysis was suitable because it was capable of predicting the effect of succession planning on organizational success. The model was first used to identify the suitability of the study model. The results for the model summary are in Table 4.

Table 4*Model Summary*

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate
1	0.552	0.304	0.302	0.48762

The correlation coefficient ($R = 0.552$) suggests a moderate strong positive relationship between succession planning practices and long-term organizational success. The coefficient of determination ($R^2 = 0.304$) indicates that succession planning practices explain approximately 30.4% of the variance in long-term organizational success. The adjusted R^2 (0.302) authorizes that this study has a good model or the model fits well.

Table 5*ANOVA^a*

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	11.041	1	11.041	46.38	0.000
Residual	25.254	373	0.238		
Total	36.295	374			

^aDependent Variable: Long-term Organizational Success

Predictor: Succession Planning

The Analysis of variance (ANOVA) revealed that the regression model is statistically significant, $F(1, 373) = 46.38, p < .001$. This implies that this model significantly predicts long-term organizational success and that succession planning has an effect on the dependent variable (long-term organizational success).

Table 6

Regression Coefficients^a

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
(Constant)	1.642	0.152	-	10.80	0.000
Succession Planning	0.521	0.076	0.552	6.81	0.000

^aDependent Variable: Long-term Organizational Success

The regression coefficient ($\beta = 0.521, t(373) = 6.81, p < .001$) shows that succession planning has a positive and significant influence on long-term organizational success. That is, a one-unit increase in succession planning was associated with an increase of 0.52 units in organizational success, provided that other factors are kept constant.

The findings of the current study revealed that the presence of effective succession planning practices significantly enhances long-term organizational success. These findings support the claim that succession planning contributes to the success of an organization. This means that succession planning leads to organizational growth/performance in terms of many aspects, including leadership continuity, developing careers and achieving mission and vision. The positive value ($\beta = 0.521$) implies that organizations with strong succession planning, including identifying employees' talents, developing leaders, and mentorship are more tend to improve organizational performance/success. The current findings concur with previous findings by Ugoani (2020) in Nigeria, who found that succession planning practices strengthened leadership continuity. Correspondingly, Maroga et al. (2024) in South Africa, Susilo and Winarto (2023) in Indonesia, and Thakur (2022) in India revealed that effective succession planning positively impacts organizational performance, adaptability, and innovation. On the contrary, organizations with no succession planning practices are likely to face challenges, including leadership crises, operational disruptions, and reduced organizational performance in the long run.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The main purpose study was to assess the influence of succession planning on long-term organizational success in Arusha City. The study revealed an overall low mean level of succession planning ($M = 2.48$), suggesting the absence/limited succession planning practices of coaching, knowledge dissemination, and management commitment in the surveyed area. Likewise, long-term organizational success was rated low ($M = 2.55$), implying that organizations did not fully achieve success. Furthermore, the analysis from the performed simple linear regression revealed that the effect of succession planning practices on long-term organizational success was significant ($\beta = 0.521, p < .001$), accounting for 30.4% of the variance. These findings suggest that improving succession planning practices could enhance long-term organizational success in all aspects of its daily operations. These findings have implications because effective succession planning practices in any organization are essential for preparing leaders and warranting long-term organizational success.

5.2 Recommendations

Based on the current study's findings, it is recommended that organizations strengthen succession planning practices for leadership continuity and minimize intrusions that can impede management operations. Consequently, improving organizational sustainability. The Management of an organization should also enhance coaching and mentorship initiatives that capacitate leaders to prepare them for higher leadership roles. This will enable organizations to obtain proficient leaders in the future.

Additionally, organizations should promote in-service training and talent development programs for employee development. These initiatives could motivate employees in the workplace in leadership roles, thereby contributing to long-term organizational success. Also, there should be participatory management in engaging employees effectively in planning and decision-making. This could lead to transparency, accountability, and innovation, thus effective functioning of an organization. Finally, succession planning should be aligned with the strategic goals of an organization. Incorporating succession planning practices into long-term mission and vision promotes sustained growth, adaptability, and long-term organizational success.



Declaration of Interest

The author declare that he does not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Examining the role of school leadership in enhancing teachers' adaptation of inclusive teaching practices in mainstream primary schools in Arusha City Council, Tanzania

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ABSTRACT

Inclusive education has become a global priority in education reforms, aiming to provide all learners, regardless of their abilities or disabilities, with equal opportunities to succeed. However, meeting the diverse needs of learners in the inclusive classroom remains a pressing challenge for school leaders and educators worldwide. This study explored the role of school leaders in enhancing teachers' adaptation of inclusive teaching practices that address the diverse needs of learners in an inclusive classroom among primary schools in Arusha City Council. The study was guided by the Transformational Leadership Theory, which advocates for school leadership that inspires both teachers and learners to embrace an inclusive learning environment and enhances teachers' adaptation of inclusive teaching practices. The study employed a mixed-methods research approach and a convergent parallel design. Data were collected using questionnaires and semi-structured interviews from 94 teachers and four head teachers who were recruited using random and purposive sampling techniques and analyzed using descriptive statistics and thematic analysis, respectively. The findings revealed that school leaders play a pivotal role in enhancing inclusive teaching practices through providing resources, promoting professional development, encouraging collaborative planning and mentorship programmes, and supporting the use of diverse teaching strategies in mainstream classrooms. The study concludes that effective school leadership is essential for creating, maintaining, and fostering an inclusive teaching environment. It recommends targeted leadership training, a strong policy framework, resource mobilization, continuous professional development for teachers, and increased funding as key enhancement strategies for teachers' adaptation of inclusive teaching practices in mainstream primary schools.

Keywords: Inclusive Teaching Practices, Mainstream Primary Schools, School Leadership, Teachers' Adaptation

I. INTRODUCTION

Inclusive education has evolved significantly over the past few decades, driven by a global movement towards equity and accessibility in education. The concept, which initially focused on integrating learners with disabilities into mainstream classrooms, has expanded to encompass a broader range of diverse needs, including socio-economic, cultural, and linguistic differences (United Nations Educational, Scientific and Cultural Organization - UNESCO, 2005). Historically, the push for inclusive education began with the Salamanca Statement in 1994, which advocated for the right of all children to participate in regular schools, promoting an education system that values diversity and inclusivity for all (UNESCO, 1994). Globally, inclusive education has as a core objective within the international education agenda, specifically under Sustainable Development Goal 4, which calls for inclusive and equitable quality education and life learning opportunities for all (United Nations – UN, 2006; 2015). International Frameworks such as the United Nations Convention on the Rights of Persons with Disability (CRPD) have further reinforced the right to inclusive education, mandating systemic changes in curriculum, and teacher preparation to accommodate diverse learners (UNESCO, 2020). The importance of inclusive education is underscored by its potential to enhance educational outcomes and social integration. Broadly, inclusive education aims to create a learning environment that caters to the needs of all learners, irrespective of their socio-economic background, gender, abilities or geographical location (UNESCO, 2022).

Tanzania, like any other developing country, has embraced inclusive education as a key component of its educational policies, aligning with international frameworks to ensure that all children, including those from marginalized groups, have access to quality education. Apart from Tanzania having ratified the 1994 Salamanca Statement which emphasizes the need to provide access to quality basic education to children with special needs, also subscribes to the Dakar Framework for Action, that seeks to ensure that all children have access to, and complete, fee-free and compulsory primary education of good quality by 2025 (UNESCO, 2000). The ratification has been instrumental in attempts to fulfil the goals and targets of World Declaration of Education for All (EFA). Many countries



including Tanzania, have responded to these international conversions by adopting national inclusive policies, strategies and development plans. In particular, Tanzania has put in place the National Policy on Disability (2004), Personal with Disability Act (2010), the National Disability Mainstream Strategy (2020/21 -2025/26), and National Strategy for Inclusive Education (2021/22 – 2026/27) among others aimed at developing a comprehensive roadmap for inclusive education in the country (United Republic of Tanzania – URT, 2023). In addition, the country's Education and Training Policy (ETP) of 2014, revised in 2023, explicitly supports an inclusive and equitable education system (URT, 2023). However, the practical realization of these policies remains uneven across different regions. Though inclusive education has been adopted as a national priority, yet its implementation is challenged by inadequate resources, insufficient teacher preparation, negative societal attitudes, larger class sizes and lack of assistive technologies (World Bank, 2020; Kanyopa & Mkhele-Makgalwa, 2025; Tchongwe & Mwila, 2025).

School leaders play a pivotal role in fostering an inclusive environment, as they are responsible for leading the implementation of inclusive practices and promote a school culture that values diversity (Bush & Glover, 2014). School leadership is responsible for creating and maintaining an inclusive learning environment, yet there is limited empirical evidence in understanding the specific roles school leaders use to support teachers' adaptation of inclusive teaching practices in mainstream primary schools. Studies have often focused on broader aspects of educational leadership practices without delving deeply into their specific role in supporting teachers' adaptation of inclusive teaching approaches pertinent to mainstream classrooms (Hallinger & Heck, 2010). Research suggests that school leadership directly impacts teachers' ability to adapt inclusive teaching approaches that address the varying academic and emotional needs of their learners (Leithwood & Louis, 2011; Robinson et al., 2008). The gaps in current research include a need for detailed case studies that focus on specific local contexts, such as how the school leadership supports teachers' adaptability of inclusive teaching practices that address diverse learner needs. Moreover, there is a lack of empirical data on specific leadership role employed by school leaders in supporting teachers' adaptability of inclusive teaching practices in Tanzania's mainstream primary schools and their impact on inclusivity. Addressing these gaps is significant as it would provide a clearer picture of the barriers and enablers within the Tanzanian educational system, and Arusha City Council in particular. It would also offer practical insights for policymakers, educational planners, and school leaders to enhance the inclusivity of education and ensure that all learners receive the support they need to succeed (Ball & Hennessy, 2020). Thus, this study aimed at examining specific roles that school leaders use to enhance teachers' adaptation of inclusive teaching practices in public mainstream primary schools in Arusha City Council.

1.1 Research Objective

This study aimed to examine the role of school leadership in enhancing teachers' adaptation of inclusive teaching practices in mainstream primary schools in Arusha City Council

II. LITERATURE REVIEW

2.1 Theoretical Review

Transformational Leadership theory was developed by James V Downtown in 1973 and further expanded by Bernard M Bass in 1985. The theory asserted that leaders could inspire and motivate followers by creating a vision, fostering commitment, and encouraging personal development (Bass, 1999). This theory was particularly relevant to the study as it examined how school leaders in the Arusha City Council could inspire teachers and learners to embrace inclusive education. It focused on how leaders could influence and transform the school environment to effectively support diverse learning needs. The theory was used to explore how school leaders' support teachers' adoption of inclusive teaching practices such as promoting in-service professional development, support teachers adoption of inclusive teaching methods and promotion of effective learner participation. The strength of the theory lies on its focus on inspiring and motivating individuals to achieve beyond expectations. Thus the theory was well-suited for guiding the study because it emphasizes the role of school leaders in driving positive change and fostering an environment conducive to inclusive education (Bass & Riggio, 2006). However, the theory potential limitation is that it overlooks the structural and systemic challenges that leaders face (Northouse, 2018). The transformational leadership theory suits the study because of its focus on leadership practices and their impact on the inclusivity of the school learning environment. The transformational theory aligned with the study's objective of examining school leadership roles in enhancing teachers' adaptability of inclusive teaching practices, providing a robust framework for understanding the dynamic roles of school leadership in fostering inclusive teaching practices in mainstream primary schools.

2.2 Empirical Review

Over the past few decades, research has increasingly emphasized the pivotal role that school leadership plays an important role in fostering inclusive teaching practices. Effective school leadership is widely recognized as a key factor in improving the quality of teaching and learning, particularly in diverse educational settings. Studies such as that



of Rivana et al. (2024) explored the role of school principals in promoting inclusive education, focusing on the strategies they employ, challenges they face and the impact of their leadership on creating inclusive school environment in Thailand. Using a qualitative approach and a case study design, they collected data using in depth interviews from 15 school principals across diverse educational settings and were analyzed thematically to identify key patterns in the principals' approach to inclusion. Findings revealed that school principals play a crucial role in fostering inclusive education by promoting inclusive policies, ensuring adequate resources allocation, and supporting professional development for teachers. However, contextually, the study was conducted outside Africa and Tanzania in particular, and covered principals' role on creating inclusive education in general, contrary to the current study that seeks specifically, to examine school leadership role in supporting teachers' adaptability of inclusive teaching practices. Tchongwe and Mwila (2025) examined how instructional leadership influences inclusive education practices in four selected primary schools in Malawi. Using a qualitative research design, data were collected through semi-structure interview, focus group discussion and document reviews and were analyzed thematically to capture patterns and variations across schools. Findings showed that instructional leadership promoted inclusive education through shared vision, building community engagement, supervision of teaching, provision of resources and professional development for teachers and challenges included overcrowded classrooms, inadequate training, limited resources, cultural stigma around disability and heavy administrative workload for teachers. Despite these encounters, results showed that supportive leadership enhanced teachers' confidence, improved collaboration and fostered positive attitudes toward inclusion.

Khaleel et al. (2021) examined the role of school principals in promoting inclusive schools in the city of Al Ain, United Arab Emirates (UAE). Using a qualitative approach and a phenomenology research design, data were collected using a semi-structured interview to gather data from 10 participants, including special education and general education teachers, five from public and five from private schools. Findings demonstrated that principals' awareness of inclusive education emerged as a significant factor in creating and promoting inclusive schools, suggesting that, in order to foster inclusive school environment investing in principals' knowledge and positive attitude about inclusion is paramount important. However, the study was solely qualitative and focused particularly on factors influencing principals' role in promoting inclusive school environment as perceived by teachers, contrary to the current study which is a mixed method research focusing on school leadership role in enhancing teachers' adaptability of inclusive practices. Nketsia, et al. (2025) investigated inclusive teaching practices with particular focus on evaluating teachers' competence in applying Differentiated Instruction (DI) to meet the needs of students with disabilities in high secondary schools in Ghana. Data were collected using structure questionnaire from 204 high school teachers were recruited from 10 high school that were conveniently selected across the three regions in Ghana. The study found a relationship between teacher readiness and inclusive teaching strategies and recommended targeted training in DI to enhance inclusive practices in classrooms. This study focused mainly on teachers' competencies in implementing DI in high secondary schools, the current study seeks to examine school leadership role in supporting teachers' adaptation of inclusive teaching practices in mainstream primary schools.

III. METHODOLOGY

3.1 Research Approach and Design

This study adopted a mixed-methods research approach, integrating both quantitative and qualitative methods and a convergent parallel design. The study employed a mixed methods approach and parallel research design in order to integrate both quantitative and qualitative data collection and analysis within a single study simultaneously for gaining a thorough understanding of the research problem (Creswell & Creswell, 2023). Quantitative data from the questionnaire examined the role of school leadership in supporting teachers' adaptability of inclusive teaching practices, while qualitative data from interviews and observations provided nuanced insights into the experiences of school leaders, teachers and learners. This combination allowed for a comprehensive understanding of the complex dynamics of the role of school leadership in fostering teachers' adaptability of inclusive pedagogical practices in selected primary schools of Arusha City Council.

3.2 Study Area

This study was conducted in selected primary schools in Arusha City Council, Arusha, Tanzania. Arusha City Council was chosen as the study area for this research due to its unique urban characteristics and diverse demographic composition that provided a rich context for exploring inclusive pedagogical practices. Unlike many rural areas of Tanzania, Arusha benefits from relatively better access to educational resources, infrastructure, and trained personnel, as indicated by the Education and Training Policy (URT, 2023). Additionally, Arusha's proximity to various educational stakeholders, including government agencies, NGOs, international and regional community organizations, they all made the area more suitable for carrying out this study.



3.3 Population and Sample Size

The study population consisted of 1510 teachers from primary schools in Arusha City Council, obtained from Education Dept. ACC of 2025. The sample size for the study from the target population was obtained using Yamane's (1967) formula with a 90% confidence level and a margin of error of 10%, while purposive sampling was used to obtain four head teachers and schools out of 51 based on a criterion. Yamane's formula was computed as illustrated below:

$$n = \frac{N}{1 + N(e)^2}$$

Where; n = sample size; N = total population; e = margin of error (usually set at 0.1 for a 90% confidence level)

$$n = \frac{1510}{1 + 1510(0.1)^2}$$

$$n = \frac{1510}{1 + 15.1}$$

$$n = \frac{1510}{16.1}$$

$$n = 94$$

Therefore, the sample size of this study was 94 teachers and 4 head teachers, as presented in Table 1.

Table 1

Population and Sample Size Distribution

Item	Population	Sample	Sample determination
Teachers	1459	94	Yamane's formula
Head teachers	51	4	Purposive
Total	1510	98	

3.4 Sampling Strategies

This study employed a combination of purposive and random sampling methods. Initially, purposive sampling was used to select a diverse range of primary schools within the Arusha City Council while ensuring the inclusion of schools with varying characteristics such as size and location. Specifically, criterion sampling was used to select four head teachers who met predetermined criteria critical to the study. Once these schools and head teachers thereof were chosen, random sampling methods, such as stratified random sampling, were used to select teachers within each school to participate in the study. This combination ensured that the sample captured the diversity of the population while providing a degree of randomness in participant selection, thereby enhancing the representativeness and reliability of the findings.

3.5 Data Collection Methods

Multiple data collection methods were employed in this study to ensure the gathering of accurate, comprehensive, and triangulated information while minimizing biases (Creswell & Creswell, 2023). In this study, two primary data collection methods were used namely; questionnaires and semi-structured interview. Questionnaires were used to collect quantitative data from teachers while interview were used to collect qualitative data from head teachers in the selected primary schools. These methods were selected to capture both quantitative and qualitative data, offering a comprehensive understanding of how school leadership plays a role in supporting teachers' adoption of inclusive pedagogical practices in primary schools in Arusha City Council, Tanzania.

3.6 Data Analysis

This study employed a mixed methods approach, so data analysis was tailored to the specific type of data collected. The quantitative data from surveys were analyzed using descriptive statistics, such as frequencies and percentages, summarizing the prevalence of noticeable roles of school leadership in supporting teachers' adoption of inclusive pedagogical practices reported by participants, particularly teachers. The qualitative data from interviews with head teachers were analyzed thematically. This entailed carefully reviewing transcriptions of interviews to identify recurring themes, patterns, and significant concepts that emerged from the collected data. This thematic analysis helped to understand the lived experiences of school leaders and the role they played in fostering teachers' adaptability of inclusive teaching practices in their respective schools.



3.7 Ethical Considerations

In any scientific study, ethical considerations is a fundamental research practice, ensuring that particular research is conducted with respect and integrity while protecting participants from harm and maintaining the integrity of the study outcome (Creswell & Creswell, 2023). In this study, research clearance was obtained from relevant local authorities, participants were fully informed about the study's purpose, procedures, and potential impacts before were agreed to participate. The process ensured that their participation was voluntary and based on a clear understanding of how their data would be used. Written informed consent was obtained from each participant before their involvement in the research. Participants were assured that their participation was voluntary and that they had the right to withdraw from the study at any point in time without any repercussions. Confidentiality was rigorously maintained throughout the research process. Personal identifiers were removed from data to anonymize participants, ensuring their privacy and the secure handling of their information.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Background Characteristics of the Respondents

The demographic characteristics of the respondents reveal a diverse sample in terms of gender, age, education, work experience, and roles within the school. The participants included both male (41.5%) and female (58.5) teachers, with varying ages, the majority being considerably young teachers in their early 20s but below 40 years (71.3%) trailed by those who were in their 40s and above years (28.7%). In terms of teaching experience, the majority (60.7%) of the respondents had 10 years or more of teaching experience, followed by those with less than 10 years of teaching experience (39.3%). Respondents' highest level education indicated that the majority (58.5%) had bachelor's degree and above, while (41.5%) had acquire certificate and diplomas by the time of data collection, as summarized in Table 2.

Table 2

Background Characteristics of the Respondents (teachers only)

Description	Category	Frequency	Percentage
Gender of the respondent	Male	39	41.5
	Female	55	58.5
Age group of the respondent	20-29	13	13.8
	30-39	54	57.5
	40-49	22	23.4
	50 and above	5	5.3
Teaching experience in years of the respondent	1-5	13	13.8
	6-10	24	25.5
	11-15	31	33
	15 and above	26	27.7
Highest level of education attained by the respondent	Certificate	16	17
	Diploma	23	24.5
	Bachelor degree	51	54.2
	Master's degree	4	4.3

4.1.2 School Leadership and Teachers' Adaptability of Inclusive Teaching Practices

Respondents were subjected to five items on the role of school leadership in supporting teachers' adaptability of inclusive teaching practices in mainstream primary schools which were scaled using the five-point Likert scale, where 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A), and 5 = Strongly Agree (SA). Table 3 gives the descriptive results of the items on the role of school leadership in supporting teachers' adaptability of inclusive teaching practices.

**Table 3***School Leadership and Teachers' Adaptability of Inclusive Teaching Practices*

Statement	SD Count (%)	DA Count (%)	N Count (%)	A Count (%)	SA Count (%)	Mean Count (%)	Overall rating	Std. Dev.
School leaders provide resources to help teachers address diverse learning needs.	4(4.4)	18(20.0)	5(5.6)	63(70.0)	4(4.4)	3.59	Agree	0.860
Professional development for teachers includes diversity training.	8(8.9)	2(2.2)	17(18.9)	42(46.7)	23(25.6)	3.89	Agree	0.892
School leaders encourage collaborative planning among teachers to meet learner needs.	0	14(15.6)	9(10.0)	46(51.1)	21(23.3)	3.82	Agree	0.967
Teachers receive mentorship from school leaders on inclusive education practices.	0	9(10.0)	18(20.0)	46(51.1)	17(18.9)	3.79	Agree	0.868
The leadership supports the use of diverse teaching approaches.	0	9(10.0)	5(5.6)	64(71.1)	12(13.3)	3.88	Agree	0.762

The results in Table 3 on whether the respondents perceived that school leadership provides resources to help teachers address diverse learners' needs, the results showed that majority (74.4%) agreed as opposed to 22% who disagreed, indicating that while many perceive adequate support, there remains a noteworthy minority that feels resources are insufficient or lacking. Additionally, 5.6% of respondents were undecided, highlighting the need for ongoing evaluation to ensure that resource distribution meets the evolving demands of diverse classrooms. These descriptive statistics by teachers were supported by head teachers in an interview as one explained:

"We always provide teachers with the necessary teaching and resources to support them in implementing an inclusive school curriculum. However, sometimes these resources are not sufficiently available in schools for the teachers due to limited funding; nevertheless, we always try to share the available resources to teachers" (HT, School B, October, 2025).

The views suggest that providing teachers with necessary teaching and learning resources is essential in fostering inclusive teaching practices. The analysis demonstrates that limited resources in schools impact the teaching and learning process in mainstream classrooms, thus school leaders should ensure the availability of resources for the effective inclusion.

Regarding whether the respondents were provided with professional training programmes to enhance inclusive teaching approaches, results indicate that the majority (72.3%) agreed as opposed to 11.1% who disagree, suggesting that a significant portion of teachers felt supported in this regard while others felt that training for inclusive teaching were inadequate or not adequately prioritized by their school leaderships. However, 18.9% of the respondents were undecided indicating that some teachers are unaware about the availability of any form training for inclusivity. This mixed reactions suggests that while there are positive perceptions about inclusivity training, there is still room for improvement in ensuring that all teachers have access to effective professional development opportunities tailored to inclusive teaching practices. These accounts by teachers were supported in an interview with head teachers who indicated that professional development is essential for teachers to continuously refine their inclusive teaching practices as one explained:

"We provide our teachers with various professional development opportunities, including access to workshops and training sessions focused on differentiated instruction. We also encourage them to share their experiences and strategies with each other during staff meetings." (HT, School A, October, 2025).

These views underscore that teachers' access to professional development opportunities equip them with effective teaching approaches for differentiated instruction, ensuring that they can cater to the unique learning needs of each learner. The analysis suggest that without continuously improvement of teachers' inclusive pedagogical skills, through training affects their ability to implement inclusive teaching practices.

As regards to whether school leadership encourages collaborative planning among teachers to meet learner needs in an inclusive setting, result suggest that the majority (74.4%) agreed as opposed to 25.6% who disagreed, indicating that most of the teachers acknowledged that school leadership encourages collaborative planning among teachers to meet learners' needs, while others felt that collaborative planning is not consistently emphasized or sufficiently supported across the schools. However, 10% of respondents were unaware of any collaborative planning initiative by their respective schools.

In an interview, head teachers supported the descriptive statistics provided by teachers by pointing out that their schools have been fostering collaborative teaching among teachers as one of them explained:



“In my school we encourage teachers to collaborate in planning school activities, lesson development, and team teaching among others. This collaborative environment not only enhances teachers’ confidence but also fosters sense of collective responsibility where teachers support each other, share experiences and improve practice” (HT, School C, October, 2025).

The statements suggests that when school leaders create a conducive and supportive environment that fosters collaboration, teachers tend share knowledge and experiences with one another leading to improvement in teaching practices. For effective inclusive teaching practices, school leadership should cultivate a culture of teamwork and collaborative behaviour among teachers.

In terms of whether teachers receive mentorship support by their school leaders in enhancing inclusive teaching practices, results indicated that the majority (70%) agreed as opposed to 10% who disagreed, suggesting that school leadership provides adequate mentorship to teachers on inclusive education practices, while others expressed a different opinion that mentorship initiatives were not commonly provided in their schools to help teachers handle inclusive education practices. However, a considerable proportion of 20% were undecided, indicating that some teachers might perceive the mentoring efforts as inconsistent or inadequate. These findings highlight the importance of ongoing school mentorship initiatives to ensure that all teachers receive the guidance necessary for inclusive practices. In an interview with head teachers, they pointed out that in some schools, there were mentorship efforts in place to enhance teachers’ skills and confidence in employing inclusive pedagogies, as one noted:

"Our school has implemented a mentorship program where experienced teachers support new ones in adapting their teaching methods. We hold regular check-ins to discuss challenges and successes, and this allows teachers to refine their approaches based on real classroom experiences." (HT, School D, October 2025).

These statements suggest that peer membership efforts enable experienced teachers to provide targeted support and guidance to their less experienced counterparts. The analysis indicates that in the context of limited formal training, peer learning is an effective way for fostering professional growth, as it offers personalized insights that are directly applicable to classroom settings.

Regarding to whether school leadership supports teachers’ adaptation of inclusive teaching approaches, results indicated that the majority (84.4%) agreed, where as 15.6% disagreed, indicating that while majority appreciated school leadership support on the use of diverse teaching approaches for teachers while others were not satisfied about what their school leaders were doing. However, 5.6% were undecided on whether school leadership supports the use of differentiated instruction, suggesting that a portion of teachers may not have fully experience or perceived such support. These findings highlight the importance of continuous efforts by school leaders to promote diverse instructional approaches consistently across spectrum of teachers ensuring that every teacher feels empowered to employ diverse teaching approaches.

4.2 Discussion

The findings revealed that school leaders foster teachers’ adaptability of inclusive teaching practices through provision of teaching resources, while others perceived that teaching resources were insufficient and inconsistently distributed across teachers and schools. This finding aligns with that of Rivana et al. (2024) who argued that school leaders who adequately ensured resource allocation and support to teachers were found to improve both inclusive teaching practices and learner learning outcomes. Tchengwe and Mwila (2025) observed that instructional leadership promoted inclusive education in their schools through supervision of teaching and provision of resources among others. Similarly, the study indicated that teachers were supported to improve their inclusive teaching approaches through professional development and school mentorship initiatives. This resonates with that of Nketsia et al. (2025) who found a positive relationship between teachers’ training and inclusive teaching practices. Similarly, Mokhampanyane (2024) found out that teachers who were well-prepared and supported for inclusive teaching through in-service training showed capability of implementing inclusive education as compared to those who had no any form of training. Moreover, the study found that school leaders supported teachers in adapting inclusive teaching approaches, encouraged collaborative planning to improve their teaching practices. The findings concur with that of Tchengwe and Mwila (2024) who established that school leadership practices such as teachers and community engagement, shared vision and collaborative behaviours among others promoted inclusive teaching practices. Additionally, Carter and Abawi (2018) observed that school leadership who found to involve teachers in making collective decision, reinforcing articulated expectations, support and acknowledgment toward a shared vision were found to be more effective in implementing inclusive practices than those that were not supportive and collaborative.



V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The findings revealed that school leadership plays a great role in fostering teachers' adaptability of inclusive teaching practices in mainstream public primary schools in Arusha city. Particularly, through the provision of teaching resources, professional development efforts, fostering collaborative planning, mentorship programmes, and supporting teachers in implementing inclusive teaching practices. These school leadership initiatives not only enhance teachers' ability to manage inclusivity but also foster an educational environment where all learners can be fully involved, feel accepted, and equally valued. Thus, school leaders should be willing to build an inclusive school environment in all aspects that respect learners' diversity through enhancing teachers' adaptability of inclusive teaching practices. Through prioritizing professional development and fostering a culture of collaboration, school leadership empowers teachers' innovativeness and tailors their teaching approaches to cater to the unique needs of their learners.

5.2 Recommendations

Based on these findings, the study highlights the need for systemic support to strengthen inclusive leadership practices in schools, which in turn may promote teachers' adaptability of inclusive teaching practices. Policymakers, educational stakeholders, and school leaders should prioritize policies that mandate equitable distribution of resources across all schools, ensuring that no child is left unattended. Moreover, for teachers to continuously apply inclusive teaching practices in mainstream classrooms, they need to be supported through training opportunities, promotion of mentorship programmes and increased school funding for sustainable inclusion. Ultimately, the study emphasizes that inclusive education requires more than just well-intentioned policies, it demands dedicated school leadership committed to supporting teachers and fostering an inclusive environment for all learners.

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Hermeneutic phenomenology as methodological practice: Interpreting lived experience in qualitative research

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ABSTRACT

Qualitative research frequently claims to investigate lived experience, yet many studies provide limited methodological articulation of how lived experience is interpreted, situated, and constituted in context. This article advances hermeneutic phenomenology as a rigorous methodological approach for qualitative inquiry, clarifying how lived experience is understood and interpreted within the interpretivist and constructivist research traditions. Drawing exclusively on philosophical and methodological sources commonly employed in qualitative research, including Heidegger's hermeneutic phenomenology, Gadamer's philosophical hermeneutics, Schutz's phenomenological sociology, and van Manen's phenomenology of practice, the paper develops a conceptual and methodological synthesis. Hermeneutic phenomenology is explicated as a practical methodological framework that informs research design, data generation, and interpretive analysis through principles such as being-in-the-world, lifeworld, temporality, fore-structures of understanding, intersubjectivity, co-constitution, reflexivity, and the hermeneutic circle. The paper demonstrates that hermeneutic phenomenology provides a coherent methodological logic for interpreting lived experiences as meaningfully embedded in everyday practice rather than as decontextualised accounts. By foregrounding interpretation, temporality, and reflexive engagement, the framework clarifies how meaning emerges through iterative movement between pre-understanding and interpretive insight, thereby strengthening the analytical depth and transparency of qualitative research. This article contributes to qualitative research in organisations and management by positioning hermeneutic phenomenology not merely as a philosophical orientation but as an operational methodological practice. In doing so, it addresses ongoing concerns about methodological vagueness in qualitative studies of lived experience. It offers a robust, reflexive framework for researchers seeking to investigate meaning, practice, and lived experience with greater interpretive rigour. In conclusion, the article positions hermeneutic phenomenology as an operational methodological practice capable of enhancing interpretative rigour in qualitative studies of lived experience in organisational and management contexts. It recommends that researchers explicitly articulate their interpretive stance, embed reflexivity throughout the research process, and evaluate rigour through philosophically aligned criteria that prioritise interpretive coherence, transparency, and contextual grounding over procedural validation techniques.

Keywords: Hermeneutic Phenomenology, Interpretation, Interpretivism, Lived Experience, Lifeworld, Reflexivity, Qualitative Methodology

I. INTRODUCTION

Across the social sciences, qualitative research has increasingly foregrounded lived experience as a means of understanding human action, meaning, and practice. In organisational and management research, qualitative methods are widely employed to examine how individuals experience work, technology, leadership, and organisational change (Chambers, 2024; Jemal *et al.*, 2025; Nigar & Kostogriz, 2025; Vogl, 2021). Interviews, narratives, and reflective accounts are commonly used to access these lived experiences, often with the stated aim of capturing participants' perspectives or accounts in their own words (Alsaigh & Coyne, 2021; Ho *et al.*, 2026; Lim, 2025).

Despite this emphasis on lived experience, methodological clarity regarding how experience is interpreted and analysed remains uneven. Many qualitative studies implicitly assume that lived experience is readily accessible through participants' accounts and that meaning can be extracted directly from what is said. Such assumptions risk treating experience as transparent and self-evident rather than as interpretive, situated, and socially constituted (Blaikie, 2010; Crotty, 1998).

Interpretivist scholarship challenges this view by emphasising that experience is always already embedded in historical, cultural, and relational contexts. Meaning does not exist independently of interpretation; rather, it emerges

through engagement with the world and with others (Gadamer, 1989; Heidegger, 1996). From this perspective, qualitative research that claims to investigate lived experience must articulate how interpretation is understood, enacted, and justified.

This paper argues that hermeneutic phenomenology provides a coherent and rigorous methodological framework for addressing this challenge. Rooted in Heidegger's ontology of *being-in-the-world* and extended through Gadamer's philosophical hermeneutics, Schutz's phenomenological sociology, and van Manen's phenomenology of practice, hermeneutic phenomenology offers a systematic way of engaging with lived experience as meaningful, situated, and interpretive (Gadamer, 1989; Heidegger, 1996; Schutz, 1967; van Manen, 1990, 2023).

The purpose of this paper is to explicate hermeneutic phenomenology as a methodological practice rather than abstract philosophy. By clarifying its ontological, epistemological, and methodological commitments, the paper contributes to qualitative research in organisations and management by strengthening interpretive depth, reflexivity, and methodological transparency.

1.1 Statement of the Problem

Qualitative research frequently claims to examine lived experience, yet many studies provide a limited methodological explanation of how experience is interpreted and situated in context (Lim, 2025). Participant accounts are often treated as transparent representations of meaning, resulting in descriptive analyses that under-theorise interpretation, reflexivity, and contextual embeddedness (Dibley *et al.*, 2020; Ho *et al.*, 2026). Although hermeneutic phenomenology is commonly cited as a philosophical orientation, it is often applied without sufficient methodological clarity regarding how its concepts inform research design, data generation, analysis, and claims of rigour (Al-Sheikh Hassan, 2025). This lack of methodological articulation contributes to ongoing concerns about interpretive vagueness in qualitative studies of experience (Frechette *et al.*, 2020), particularly within organisations and management research.

1.2 Research Objective

To articulate hermeneutic phenomenology as a coherent and operational methodological framework for interpreting lived experience in qualitative research within the interpretivist and constructivist traditions.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 The Need for Methodological Clarity in Qualitative Research

Qualitative research is often praised for its ability to capture complexity, nuance, and context. However, critics note that qualitative studies sometimes rely on methods such as interviews without adequately theorising how meaning is constructed through the research process (Blaikie, 2010). Treating participants' narratives as direct representations of reality risks overlooking the interpretive work involved in both speaking and analysis.

From an interpretivist standpoint, meaning is socially constructed rather than objectively given (Crotty, 1998). Experience is shaped by language, history, power relations, and shared cultural understandings. Consequently, qualitative research cannot simply "collect" experience; it must interpret it. This interpretive work requires a clear methodological orientation that explains how understanding is achieved.

Hermeneutic phenomenology addresses this concern by positioning interpretation as fundamental rather than supplementary to qualitative inquiry. Rather than seeking to describe experience as it supposedly "is," hermeneutic phenomenology seeks to understand how experience is lived and made meaningful within particular contexts (Lavery, 2003; Neubauer *et al.*, 2019). This distinction is critical for organisational and management research, where experiences of work, technology, and organisation are embedded in complex social and institutional arrangements.

Without such methodological grounding, qualitative studies risk remaining descriptive, offering thematic summaries without engaging the deeper structures of meaning that shape practice. Hermeneutic phenomenology provides conceptual tools for moving beyond description toward interpretive understanding.

2.1.2 Hermeneutic Phenomenology as a Methodological Orientation

Hermeneutic phenomenology is grounded in phenomenology and hermeneutics; however, in research practice, it functions less as an abstract philosophy and more as a methodological orientation for studying lived experience as meaningfully interpreted within its context. Hermeneutic phenomenology emerges from the fusion of two longstanding philosophical traditions: phenomenology, the study of lived experience as it is encountered, and hermeneutics, the art and practice of interpretation. As Ajjawi and Higgs (2007) observe, understanding hermeneutic phenomenology requires considering both traditions independently before appreciating their synthesis. Whereas phenomenology seeks to uncover how individuals experience the world, hermeneutics addresses how meaning is

interpreted within that world (Alsaigh & Coyne, 2021; Neubauer *et al.*, 2019). When combined, most notably in Martin Heidegger's reinterpretation of phenomenology, these traditions form an ontological approach that views human existence as fundamentally interpretive. Methodologically, this synthesis frames qualitative research as an inquiry into how experiences are both lived and interpreted, positioning meaning rather than measurement as the primary object of analysis (Laverty, 2003).

From phenomenology, hermeneutic phenomenology inherits a commitment to attending closely to lived experience; that is, how phenomena are encountered, felt, and made meaningful in everyday life. Phenomenology, originating with Edmund Husserl, focused on describing experience as it appears to consciousness, emphasising intentionality and the structures that shape perception. Husserl advocated bracketing (*epoché*), a suspension of assumptions intended to uncover the "essences" of phenomena (Cudjoe, 2023). Essence, in this sense, refers to the essential meanings that make a phenomenon what it is (van Manen, 2023). While classical Husserlian phenomenology sought descriptive purity through bracketing, later phenomenological research has adapted this stance methodologically by encouraging researchers to adopt a reflective and questioning orientation toward their assumptions rather than attempting their complete suspension (Dodgson, 2019; Ho *et al.*, 2026). In practice, this methodological inheritance translates into research designs that prioritise rich, first-person accounts and sustained engagement with participants' descriptions of experience, while acknowledging the researcher's interpretive involvement.

Hermeneutics contributes a complementary methodological emphasis on interpretation, recognising that meaning is not self-evident but emerges through interaction between the researcher, the participant, and the context (Alsaigh & Coyne, 2021). Rather than treating experience as transparent or immediately accessible, hermeneutics foregrounds the role of history, culture, language, and prior understanding in shaping how meaning is constituted (Laverty, 2003). This has direct implications for qualitative analysis: data are not treated as neutral representations of reality but as texts requiring careful, situated interpretation. Understanding is therefore approached as provisional and evolving, shaped by historical, cultural, and relational conditions rather than fixed analytical procedures.

Heidegger's reinterpretation of phenomenology provides the core methodological shift that distinguishes hermeneutic phenomenology from descriptive approaches. Challenging Husserl's focus on consciousness, Heidegger reframed phenomenology as an inquiry into being. In *Being and Time* (1996), he argued that humans, whom he termed *Dasein*, do not simply perceive the world but are always already involved in it. To understand experience, therefore, is to interpret it within the context of one's *being-in-the-world* (Heidegger, 1996). For Heidegger, interpretation is not a secondary analytical step but constitutive of existence itself; human beings do not first observe and then interpret, but interpret as a fundamental mode of being. Methodologically, this implies that experience cannot be analytically separated from context, practice, or temporality, and that interpretation begins at the point of data generation rather than being deferred to a later stage of analysis.

Hans-Georg Gadamer later expanded Heidegger's ideas by emphasising the dialogical, historical, and relational dimensions of understanding. Meaning, Gadamer argued, arises not from detached analysis but from the interaction, or fusion of horizons, between the interpreter's historically situated understanding and that of the phenomenon or text (Gadamer, 1989). In research practice, this entails recognising that understanding emerges through continual engagement with participants, context, and text (Neubauer *et al.*, 2019). Methodologically, this perspective foregrounds reflexivity and iterative interpretation, requiring researchers to critically engage with their own pre-understandings and remain open to having initial interpretations reshaped through ongoing dialogue with the data.

Hermeneutic phenomenology, therefore, rejects the idea of objective detachment. Instead, it embraces interpretation as a dynamic, recursive process grounded in the lifeworld, the pre-reflective, taken-for-granted world that individuals inhabit (Neubauer *et al.*, 2019; Zahavi, 2025). As van Manen (2023) notes, hermeneutic phenomenology aims not at abstract theorisation but at capturing the meaningful structures of experience as they are lived. As a methodological approach, this orientation directs researchers toward in-depth, context-sensitive inquiry, iterative engagement with data, and interpretive writing that seeks to illuminate lived meaning rather than produce generalisable claims.

Taken together, these philosophical foundations function as methodological commitments rather than abstract theory. They inform the formulation of research questions centred on lived meaning, guide data generation methods that privilege experiential accounts, and shape analytic practices characterised by reflexivity, iteration, and contextual interpretation. In this way, hermeneutic phenomenology provides a coherent methodological framework for studying experience as it is lived, interpreted, and made meaningful in everyday life.

2.1.3 Heidegger: Being-in-the-World and Interpretation

Hermeneutic phenomenology is grounded in Martin Heidegger's reworking of phenomenology as an ontological rather than epistemological project. In *Being and Time*, Heidegger argued that human beings (*Dasein*) are

always already situated in the world they seek to understand (Heidegger, 1996). At the centre of Heidegger's ontology is the concept of *being-in-the-world*, which asserts that human existence is always embedded in and inseparable from the world. Human beings do not stand outside the world as neutral observers; rather, they are immersed in it through relationships, practices, histories, and concerns. Understanding is not a detached cognitive activity but a mode of existence.

Heidegger emphasised that experience does not occur in isolation but is always shaped by the contexts and practices that define the world one inhabits (Farrell, 2020). He used the metaphor of "coming to a clearing in the woods" to illustrate how understanding emerges when something becomes meaningfully disclosed within the flow of lived experience. Drawing on this notion of *Dasein*, hermeneutic phenomenologists argue that being-in-the-world is "always already interpretive" because individuals are continually engaged in making sense of their experiences (Gadamer, 1989; van Manen, 2023).

From this perspective, experience is disclosed through practical engagement with the world rather than through reflective observation. People encounter phenomena through use, involvement, concern, and care. Interpretation, therefore, is not an optional methodological step but a fundamental aspect of being human. For qualitative research, this implies that experience cannot be accessed as a neutral object. Researchers and participants alike are embedded in worlds of meaning that shape what is noticed, articulated, and understood. Hermeneutic phenomenology embraces this condition rather than attempting to overcome it.

2.1.4 Gadamer: Historicity and the Fusion of Horizons

Hans-Georg Gadamer in *Truth and Method* (1989), extended Heidegger's ontological turn in hermeneutics by emphasising the historical and dialogical nature of all understanding. For Gadamer, interpretation is always shaped by prejudices; pre-judgements grounded in one's history, culture, and lived experience. Rather than viewing prejudices as obstacles, Gadamer (1989) described them as productive conditions that make understanding possible. These pre-understandings form what Gadamer called a *horizon*, a boundary of meaning that is never fixed but constantly shifting as individuals encounter new perspectives and experiences. A horizon does not have "a rigid boundary, but something that moves with one and invites one to advance further" (Gadamer, 1989).

Understanding emerges through dialogue, where the interpreter's horizon and the horizon of the phenomenon or participant gradually merge in what Gadamer termed a *fusion of horizons* (Blaikie, 2010; Crotty, 1998; Gadamer, 1989). This fusion does not imply identical perspectives; rather, it reflects the creation of new meaning through openness, reflexivity, and genuine engagement. Understanding is therefore not an act of extraction but an encounter, an interpretive meeting in which the researcher and participant co-create meaning.

Crucially, Gadamer rejected the idea that researchers could *bracket* or suspend their pre-understandings. Instead, prejudices are understood as conditions of understanding rather than sources of error. Reflexive engagement with these pre-understandings enables deeper and more accountable interpretation (Dibley *et al.*, 2020). Methodologically, this requires researchers to make their interpretive positions visible through deliberate reflexive practices, such as maintaining analytic or reflexive journals, writing interpretive memos during data analysis, and engaging in peer debriefing to surface and interrogate taken-for-granted assumptions. In qualitative research, this insight underscores that meaning is co-produced through dialogue between researcher and participant. Understanding, therefore, develops through sustained engagement, iterative interpretation, and reflexive questioning, rather than through attempts at methodological control or detachment.

Gadamer further emphasised the interpretive significance of art, symbolism, and embodied experience, arguing that understanding can arise holistically through evocative expressions that cannot be fully captured in propositional language (Crotty, 1998). This reinforces the idea that hermeneutic interpretation is both intellectual and experiential, resonating deeply with phenomenological commitments to lived meaning.

2.1.5 Schutz: Lifeworld and Intersubjectivity

Alfred Schutz brought phenomenology into the social sciences by focusing on the lifeworld, the taken-for-granted world of everyday experience shared with others (Schutz, 1967). The lifeworld (*Lebenswelt*), is Schutz's term for the everyday world of experience that individuals take for granted as the natural and unquestioned backdrop to their lives. Drawing on Husserl, Schutz describes the lifeworld as the "paramount reality" in which people act with a natural attitude, accepting the world as it appears without subjecting it to reflective scrutiny (Pula, 2024; Schutz, 1967). It is a pre-reflective environment shaped by shared routines, cultural norms, and common-sense knowledge that enable individuals to navigate daily life. Importantly, this world is not private but socially and historically constituted, having been shaped through generations of accumulated practices, linguistic traditions, and collective experiences (Zahavi, 2025). Therefore, knowledge of the world, including scientific knowledge, cannot be possible without the lifeworld.

Central to Schutz's phenomenological sociology is the idea that everyday life is inherently intersubjective. This implies that individuals experience the world as a shared social reality shaped by interaction with others, and meaning arises through participation in culturally grounded communicative practices (Schutz, 1967). This intersubjective world is sustained through typifications: generalised, socially shared categories that allow people to interpret situations and others without beginning anew each time. Typifications form an individual's "stock of knowledge at hand," a socially derived reservoir of assumptions, expectations, and shared understandings that guide interpretation (Pula, 2024).

Schutz's work highlights the intersubjective nature of experience. Meaning does not arise solely within individual consciousness but through interaction with others. For qualitative research, this emphasises the importance of examining social relations, shared practices, and collective understandings.

2.1.6 Ontological and Epistemological Positioning

Ontology concerns the nature of reality and what can be said to exist (Blaikie, 2007). In social research, ontological assumptions determine whether reality is viewed as singular or multiple, stable or fluid, and independent or socially constructed (Kivunja & Kuyini, 2017). Epistemology refers to how knowledge is created, validated, and understood (Blaikie, 2007). Hermeneutic phenomenology is underpinned by a relativist ontology and a subjectivist epistemology, consistent with interpretivist and constructivist paradigms (Blaikie, 2010; Crotty, 1998). Reality is understood as multiple and socially constructed rather than singular and objective. Knowledge emerges through interpretation rather than measurement.

Methodologically, this orientation supports an idiographic focus, privileging depth and contextual understanding over generalisation; it stands in contrast to nomothetic approaches, which prioritise generalisation and law-like explanation (Lincoln & Guba, 1985). In organisational and management research, this aligns with approaches that seek to understand meaning, sense-making, and practice rather than prediction.

2.2 Empirical Review

Empirical studies employing hermeneutic phenomenology demonstrate its utility for interpreting lived experience in complex social, organisational, and institutional contexts (Jemal *et al.*, 2025; Nigar & Kostogriz, 2025; Vogl, 2021; Walløe *et al.*, 2024). Recent research shows how hermeneutic phenomenological designs provide rich insight into professional identity and workplace experience (Nigar and Kostogriz, 2025) and how leaders interpret lived experience in organisational practice (Jemal *et al.*, 2025). Such studies show how meaning is disclosed through everyday practice rather than measured as discrete variables.

Applications in organisational, professional, and technology-mediated settings illustrate how hermeneutic phenomenology enables researchers to examine how experience is shaped by context, history, and social relations. Across empirical applications, several methodological patterns are evident. First, data generation is treated as a dialogical and co-constitutive process rather than a neutral extraction of experience, a point emphasised in recent methodological contributions to reflexivity in hermeneutic analysis (Ho *et al.*, 2026). Second, analysis proceeds through iterative engagement with the hermeneutic circle, allowing interpretations to evolve and deepen over time. Third, rigour is demonstrated through reflexive transparency, contextual richness, and philosophical coherence rather than procedural validation techniques (de Witt & Ploeg, 2006).

These empirical works illustrate how core hermeneutic phenomenological principles, such as being-in-the-world, lifeworld, intersubjectivity, temporality, and reflexivity, are operationalised in research practice. By explicitly linking philosophical commitments to methodological decisions, empirical studies using hermeneutic phenomenology address longstanding concerns about methodological vagueness in qualitative research and provide concrete models for conducting interpretively rigorous studies of lived experience.

III. METHODOLOGY

3.1 Core Principles of Hermeneutic Phenomenology

Hermeneutic phenomenology is structured around several interrelated methodological principles that guide both research design and interpretive analysis. In this study, these principles were not treated as abstract concepts. They were operationalised as practical guides shaping the formulation of research questions, the conduct of interviews, and the iterative interpretive analysis. Each principle informed concrete methodological decisions, ensuring that interpretation remained grounded in participants' lived meanings while remaining reflexively accountable.

3.1.1 Lifeworld and Lived Experience

The concept of the lifeworld (*Lebenswelt*), first articulated by Husserl (1970) and subsequently deepened by Heidegger (1996), Schutz (1967) and Gadamer (1989), refers to the everyday world of meanings, routines, relationships, and practices through which individuals understand and navigate their existence. It constitutes the pre-reflective horizon within which all experience becomes intelligible. Hermeneutic phenomenology centres on the lifeworld as the primary site of meaning (Schutz, 1967; van Manen, 1990). Researchers seek to understand phenomena as they appear within everyday life rather than imposing external theoretical categories. Lived experience is approached as embodied, relational, and situated. van Manen (1990, 2023) emphasises that phenomenological research aims to illuminate meanings that are often implicit and taken for granted. This requires attentiveness to language, context, and lived detail.

In this study, the lifeworld orientation was enacted by designing interview questions that invited participants to describe concrete situations, routines, interactions, and moments of engagement related to the phenomenon under investigation, rather than abstract opinions or general attitudes. Participants were encouraged to recount how experiences unfolded in their everyday settings, allowing meanings to emerge from practice rather than from retrospective rationalisation.

During analysis, interpretations were anchored in these everyday accounts, with close attention paid to participants' language, metaphors, emotional expressions, and references to social and material contexts. This ensured that findings remained grounded in lived experience as it is enacted in daily life, rather than abstracted into decontextualised thematic categories.

3.2 Fore-Structures of Understanding

Heidegger argued that all interpretation is grounded in what he termed the fore-structures of understanding: *fore-having*, *fore-sight*, and *fore-conception* (Heidegger, 1996). These structures describe the pre-understandings individuals inevitably bring to any encounter with the world and, by extension, to the research process.

Fore-having refers to the background familiarity, practical know-how, and experiential knowledge a person already possesses. In research practice, this may include a researcher's prior professional experience, disciplinary training, or long-term engagement with a field. For example, a researcher studying farmers' use of digital technologies may already "have in advance" practical knowledge of agricultural cycles, extension systems, or past technology interventions, which shapes what is immediately recognisable as meaningful in participants' accounts.

Fore-sight denotes the vantage point or orientation from which interpretation proceeds, shaped by one's social, cultural, and experiential positioning. Methodologically, this influences what the researcher attends to during data generation and analysis. For instance, a researcher trained in organisational studies may be particularly attentive to issues of coordination, trust, or institutional arrangements in interview data, while another researcher might foreground economic or technological dimensions. *Fore-sight* thus guides interpretive focus without rigidly determining outcomes.

Fore-conception involves the anticipations, expectations, or preliminary understandings that guide how meaning is initially projected and subsequently revised. In qualitative research, this may appear as early interpretive assumptions or sensitising concepts that orient initial analysis. For example, a researcher may begin with an expectation that farmers adopt digital tools primarily for economic reasons, only to have this *fore-conception* challenged and reshaped as social, relational, or experiential motives emerge through sustained engagement with the data.

Researchers inevitably bring prior knowledge, assumptions, and experiences into the research process. These fore-structures do not distort understanding; rather, they make understanding possible. Because individuals always stand within a horizon of pre-understanding, interpretation never begins from a neutral or empty standpoint. The hermeneutic task is therefore not to eliminate these pre-understandings but to work through them reflexively.

Reflexivity involves making these fore-structures explicit and open to interrogation. Practices such as reflexive journaling, analytic memo-writing, and dialogue with peers enable researchers to surface how *fore-having*, *fore-sight*, and *fore-conception* shape interpretation over time. Reflexivity is thus an aspect of being open to unexpected ideas (Dibley *et al.*, 2020). Interpretation deepens as fore-structures are engaged, questioned, and transformed through ongoing dialogue and reflection. This recognition underscores the centrality of pre-understanding within the interpretive process of research, and making pre-understandings visible strengthens rather than weakens interpretive rigour.

In this study, *fore-having* was addressed by explicitly acknowledging the researcher's prior familiarity with the field and documenting how this background shaped initial interpretations. Reflexive notes were maintained to identify moments where familiarity influenced what was immediately noticed or taken for granted in participants' accounts. *Fore-sight* informed the initial interpretive orientation during data generation and analysis; however, these orientations were treated as provisional and were continually revised as participants' narratives revealed unexpected

IV. FINDINGS & DISCUSSION

This section presents the interpretive outcomes of the study. Drawing on Heidegger's threefold structure of understanding, the analysis shows how fore-having, fore-sight, and fore-conception were enacted and transformed through participants' lived accounts. Heidegger's threefold structure of understanding (interpretation) as enacted in this study is illustrated in Table 1.

Heidegger's Threefold Structure of Understanding (Interpretation)

Table 1 represents an analytic synthesis of how understanding unfolded in this study. It shows how participants' accounts were interpreted through pre-existing background understandings (fore-having), interpretive orientations (fore-sight), and evolving anticipations (fore-conception), rather than presenting these structures as abstract philosophical concepts.

Heidegger emphasised that human understanding is fundamentally temporal and historically situated. He argued that experience is always shaped by the interplay of past, present, and future; what he termed historicity (Laverty, 2003; Zahavi, 2025). Interpretation, therefore, never begins from a neutral point; it always emerges from a horizon of past experiences, cultural backgrounds, and personal pre-understandings that continually shape how meaning unfolds. This underscores the importance of contextual understanding, where experiences are not viewed as isolated events but as embedded within a dynamic web of historical, cultural, and personal meanings (Blaikie, 2010). Hermeneutic phenomenology attends to this temporal dimension, recognising that understanding develops through ongoing interpretation rather than at a single moment.

4.1.2 The Hermeneutic Circle

Heidegger described understanding as unfolding through the hermeneutic circle, a dynamic movement between part and whole, and between pre-understanding and emerging insight (Heidegger, 1996). This circularity is not a methodological flaw but the very condition of interpretive understanding. In research, this means that early interpretations inevitably guide subsequent inquiry, while newly emerging insights continually reshape and refine those earlier understandings. Meaning, therefore, evolves iteratively and relationally through an ongoing dialogue between what is already understood and what comes into view as interpretation deepens.

Later scholars, including Gadamer (1989), Conroy (2003) and Dibley et al. (2020), have suggested that this process is better represented as a hermeneutic spiral rather than a closed loop. The spiral metaphor emphasises the cumulative and expanding nature of understanding: each encounter enlarges the horizon of meaning, allowing interpretations to deepen over time, across participants, and through iterative engagement with data. This view highlights that “interpretation always supposes a shared understanding” (Conroy, 2003), and that meaning emerges dialogically rather than through solitary analysis. In qualitative research, this process involves revisiting data, literature, and emerging interpretations in dialogue with one another.

4.2 Interpretation, Co-Constitution, and Reflexivity

4.2.1 Co-Constitution and Reflexivity

Co-constitution is a central concept in hermeneutic phenomenology and reflects the inseparable relationship between the person and their world, as well as between people engaged in meaning-making (Dibley et al., 2020). In Heideggerian thought, the self does not exist independently from the world; rather, self and world are mutually constituting (Heidegger, 1996). Human beings become who they are through their involvement in the world, and the world becomes meaningful only through this involvement. Meaning is therefore not a pre-existing object waiting to be discovered; instead, it arises through interpretive participation.

This co-constitutive structure also applies directly to the relationship between researcher and participant. Understanding does not arise solely from the participant nor solely from the researcher but is shaped in the dialogical space where horizons meet. As Dibley et al. (2020) explain, interpretation in hermeneutic phenomenology is always shared: both participant and researcher bring backgrounds, expectations, prejudices, and pre-understandings that shape how meaning unfolds. This stands in contrast to Husserl’s notion of the *epoché*, which sought to suspend pre-understandings to reach a transcendental essence. Heidegger rejected this possibility, arguing that pre-understanding is not a methodological contamination but a necessary condition of interpretation. Because interpretation always emerges from within a lived context, both researcher and participant participate unavoidably in the interpretive event (Dibley et al., 2020; Galdas, 2017).

Co-constitution is therefore not only a philosophical principle but also a central technique for managing the influence of self, demonstrating rigour, and ensuring that hermeneutic inquiry remains faithful to its ontological grounding. It shapes both data generation and data analysis, informing how meaning is disclosed, interpreted, and communicated in the final account.

4.2.2 Co-Constitution in Data Generation

In hermeneutic phenomenology, data generation is not a process of extracting “truth” from participants but a relational encounter in which meaning is co-created. A participant never presents a neutral or objective depiction of an experience; what is revealed during an interview is already an interpreted version of their lifeworld, shaped by the context in which the experience occurred. Similarly, the researcher does not enter the interview as a blank slate. The preconceptions, professional background, cultural situatedness, and theoretical grounding that the researcher brings are not obstacles to understanding but essential components of the interpretive process (Dibley et al., 2020; Galdas, 2017).

Because of this, interviews are not simply procedural data-generation activities. They are interpretive dialogues requiring deep, iterative engagement. As meaning emerges, the researcher and participant engage in a process of clarification, refinement, and co-interpretation. This iterative quality, *meaning* unfolding recursively through repeated engagement, is fundamental to hermeneutic phenomenology.

The co-constitutive nature of the interview challenges the conventional practice of *member checking*, commonly used in qualitative research to verify the “accuracy” of data (Lincoln & Guba, 1985). Member checking presumes that meaning is static and that participants can confirm or deny the truthfulness of a transcript or thematic interpretation. Hermeneutic phenomenology rejects this assumption. Meaning is not fixed at the moment an interview ends; both the researcher and participant continue to reinterpret and reflect afterwards (Birt et al., 2016; Dibley et al., 2020). A participant may even arrive at a new understanding of their own experience after narrating it, an insight that cannot be “checked” retroactively.

For these reasons, scholars increasingly argue that member checking is not philosophically aligned with hermeneutic phenomenology. It risks imposing a positivist notion of verification onto an interpretive methodology (Birt *et al.*, 2016; Dibley *et al.*, 2020). Instead of relying on member checking, interpretive rigour is strengthened through co-constitution during the interview itself. Clarifying questions, reflective listening, and researcher responsiveness help ensure that the participant's lay account is understood as fully as possible in that moment. These interactions support a partial fusion of horizons during the interview, enabling shared meaning-making while acknowledging that understanding remains dynamic and open.

4.2.3 Co-Constitution in Data Analysis

Co-constitution continues to shape the interpretive process during data analysis. The researcher moves repeatedly between the participants' lay accounts, their own pre-understandings, and relevant philosophical and empirical literature. Meaning arises not from the data alone but from the interplay between these elements, guided by the hermeneutic circle. As transcripts are revisited, interpretations evolve, deepen, and shift; earlier understandings give way to new insights; and emergent meanings reshape the orientation of subsequent analysis.

In hermeneutic phenomenology, the outcome of analysis is never presented as an objective or universal truth. Instead, the phenomenologist offers interpretive disclosures; situated understandings grounded in lived experience and supported by philosophical insight (Dibley *et al.*, 2020). These disclosures aim to reveal something essential about how the phenomenon shows itself to those who experience it, while recognising that other interpretations remain possible.

Traditional notions of validation, such as member checking, assume that participants can verify the accuracy of an interpretation. However, hermeneutic phenomenology understands knowledge as co-constructed rather than discovered, making such verification inappropriate. Participants may not always recognise the deeper meanings revealed through phenomenological analysis because interpretation often goes beyond what is immediately available in everyday self-understanding. Rather than undermining credibility, this reflects the interpretive depth of the method.

Rigour in hermeneutic phenomenology is supported instead by reflexivity. Reflexivity requires the researcher to continually examine how their positionality, background, and pre-understandings shape the analytic process (Galdas, 2017; Saunders *et al.*, 2023). It makes visible the interpretive lens through which meaning is disclosed and prevents unexamined assumptions from dominating interpretation. Consultation with philosophical and empirical literature also serves as a check on interpretive excess, grounding meaning in a broader intellectual horizon and ensuring that findings reflect shared, rather than idiosyncratic, understanding.

In this way, co-constitution functions both as a methodological stance and an assurance of quality. Through dialogical engagement, reflexive awareness, and continual movement between part and whole, the researcher produces interpretations that are credible, contextually grounded, and philosophically coherent. Reflexivity is embedded throughout the research process, not as a procedural step but as a continual practice underpinning understanding (Dodgson, 2019; Olmos-Vega *et al.*, 2023).

The takeaway is that Hermeneutic phenomenology recognises that meaning is co-constituted through interaction between researcher and participant. The researcher is not an external observer but an interpretive participant in the research process. Reflexivity is therefore central to methodological rigour. Researchers must critically examine how their positionality, disciplinary background, and assumptions shape interpretation. Reflexive transparency enhances trustworthiness by making interpretive processes visible.

4.2.4 Ensuring Interpretive Trustworthiness Beyond Member Checking

While member checking is often promoted as a marker of credibility in qualitative research, hermeneutic phenomenology requires alternative strategies that are philosophically aligned with its interpretive ontology (Gadamer, 1989; Heidegger, 1996). Because meaning is understood as dynamic, situated, and co-constituted rather than fixed and verifiable, interpretive trustworthiness is not secured through participant validation of findings, but through methodological transparency, reflexive engagement, and sustained interpretive accountability (de Witt and Ploeg, 2006; Dibley *et al.*, 2020; Lincoln & Guba, 1985).

First, prolonged and dialogical engagement during data generation serves as a primary mechanism for credibility (Dibley *et al.*, 2020; Gadamer, 1989). Trustworthiness is enhanced through in-interview practices such as clarifying questions, reflective listening, and interpretive probing, which allow meanings to be jointly explored and refined *in situ* (Dibley *et al.*, 2020). These dialogical practices support a partial fusion of horizons during the research encounter, ensuring that participants' accounts are understood within their intended lifeworld contexts rather than retrospectively "checked" after interpretation has already evolved (Gadamer, 1989).

Second, systematic reflexive documentation provides a transparent account of how interpretations develop over time (de Witt and Ploeg, 2006; Dibley *et al.*, 2020). Reflexive journals and analytic memos enable researchers to record emerging insights, interpretive shifts, and moments of tension between pre-understandings and empirical

material (Dibley *et al.*, 2020). Rather than eliminating subjectivity, this practice renders the researcher's interpretive involvement visible and open to scrutiny, thereby strengthening confirmability and dependability (de Witt and Ploeg, 2006; Lincoln and Guba, 1985).

Third, iterative engagement with the hermeneutic circle functions as a core analytic safeguard (Gadamer, 1989; Heidegger, 1996). Moving repeatedly between parts and whole, participant accounts, contextual understanding, and empirical material and philosophical concepts ensure that interpretations are not prematurely fixed (Dibley *et al.*, 2020). This recursive movement allows early interpretations to be challenged, revised, and deepened, providing an internal coherence check grounded in the logic of the methodology itself (de Witt & Ploeg, 2006).

Fourth, peer dialogue and interpretive debriefing offer an additional layer of rigour (Dibley *et al.*, 2020; Lincoln & Guba, 1985). Engaging with philosophically informed peers allows researchers to test the plausibility, resonance, and coherence of interpretations without reverting to positivist notions of verification (de Witt & Ploeg, 2006). Such dialogue helps identify blind spots, interrogate taken-for-granted assumptions, and ensure that interpretations remain grounded in shared interpretive horizons rather than idiosyncratic readings (Gadamer, 1989).

Finally, thick description and analytic transparency in reporting enable readers to assess transferability and credibility (Lincoln & Guba, 1985). By providing rich contextual detail, illustrative excerpts, and clear articulation of interpretive decisions, the researcher invites readers into the interpretive process (van Manen, 1990, 2023). Trustworthiness is thus achieved not through confirmation by participants, but through resonance, coherence, and the recognisability of lived meaning (Dibley *et al.*, 2020).

Taken together, these practices demonstrate that hermeneutic phenomenology does not reject rigour; rather, it reconfigures it. Interpretive trustworthiness is secured through dialogical engagement, reflexive transparency, iterative analysis, and philosophical coherence, offering robust alternatives to member checking that remain faithful to the ontology and epistemology of hermeneutic inquiry.

4.3 Rigour and Trustworthiness in Hermeneutic Phenomenology

Ensuring trustworthiness and rigour in hermeneutic phenomenological research requires approaches consistent with its philosophical foundations. Unlike positivist paradigms, which emphasise objectivity, replicability, and neutrality, hermeneutic phenomenology recognises that understanding is historically and contextually situated, and that the researcher is inevitably implicated in the interpretive process (Gadamer, 1989; Heidegger, 1996). Rigour in this tradition, therefore, arises not from eliminating subjectivity, but from engaging with it reflexively, transparently, and systematically. The conceptualisations of trustworthiness developed by Lincoln and Guba (1985), together with the philosophical expressions of rigour articulated by de Witt and Ploeg (2006), can be used to guide the assessment of methodological quality.

4.3.1 Engagement with Contemporary Methodological Debates

Recent methodological discussions in hermeneutic phenomenology have focused less on defending its philosophical legitimacy and more on strengthening methodological utility in complex empirical settings, including organisational and technology-mediated contexts. Current debates emphasise (i) how researchers document interpretive decision-making without reducing interpretation to procedural checklists, (ii) how reflexivity is practised as an audit-able and iterative activity (e.g., structured journaling, memo trails, peer debriefing), and (iii) how interpretive work is sustained across time, sites, and digitally mediated organisational practices. These developments reinforce the need for transparent "interpretive accountability" (rather than verification), while also encouraging more explicit reporting of how the hermeneutic circle, reflexive practice, and contextual interpretation are enacted step-by-step in organisational research (Al-Sheikh Hassan, 2025).

Empirical work in organisational and management-related contexts also shows how hermeneutic phenomenology is being operationalised in practice. For example, hermeneutic phenomenological analysis has been used to interpret how organisational practices and meaning structures shift with the introduction of enterprise systems and the reconfiguration of organisational memory and routines (Vogl, 2021). Similar interpretive designs have also been used to explore organisational change and restructuring through lived-experience accounts analysed through iterative movement between parts and whole, thereby demonstrating how interpretive rigour can be enacted through analytic transparency, contextual description, and reflexive engagement rather than post-hoc participant "verification" (Chambers, 2024).

4.3.2 Trustworthiness Criteria

Trustworthiness refers to the integrity with which a qualitative study is designed, conducted, and reported, and comprises credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985). These criteria align with the interpretivist and constructivist paradigm underpinning this study and serve as methodological safeguards ensuring that the interpretations presented are grounded in participants' lived accounts while remaining coherent with

hermeneutic phenomenological commitments. Because phenomenological meanings are emergent, situated, and relational, the research process requires ongoing reflexive engagement, iterative interpretation, and transparent documentation. Trustworthiness is therefore fostered through careful attention to how meanings are generated, interpreted, and represented.

4.3.3 Expressions of Rigour

Beyond trustworthiness, hermeneutic phenomenology requires attention to expressions of rigour that preserve philosophical integrity. de Witt and Ploeg (2006) identify five expressions: balanced integration, openness, concreteness, resonance, and actualisation. Balanced integration is evident in the way philosophical concepts such as being-in-the-world, fore-structures of understanding, and the hermeneutic circle are woven into both methodology and analysis. Openness is demonstrated through explicit reflexive practice and transparent documentation of interpretive decisions. Concreteness emerges in the practical implications and contextual grounding of findings, reflecting participants' real-world engagements with the phenomenon of interest. Resonance is evidenced when readers recognise or "feel" the meanings articulated; the phenomenological "nod" signals that the interpretation authentically conveys lived experience (Dibley *et al.*, 2020). Actualisation refers to the potential for resonance to extend into future contexts, enabling the insights to inform practice, policy, or further research.

Together, these expressions of rigour ensured that the study upheld both methodological quality and philosophical coherence. Rather than striving for objectivity, the emphasis was placed on demonstrating interpretive integrity, reflexive transparency, and contextual richness. Through these commitments, the study achieved trustworthiness in a manner fully aligned with hermeneutic phenomenology's ontological and epistemological foundations.

4.4 Methodological Contribution to Qualitative Research in Organisations and Management

This paper contributes to qualitative research methodology by clarifying hermeneutic phenomenology as a distinct methodological approach, articulating its ontological and epistemological foundations, demonstrating how interpretation, reflexivity, and context underpin rigour, and offering guidance for researchers studying experience, meaning, and practice. For organisational and management research, hermeneutic phenomenology provides a framework for producing context-sensitive and theoretically grounded qualitative insights.

To strengthen practical relevance, organisational researchers can draw on published hermeneutic phenomenological applications that demonstrate alignment between lived-experience questions, dialogical interviewing, and iterative interpretation. For instance, studies have applied hermeneutic phenomenology to interpret organisational or administrative practices shaped by enterprise technologies and institutional routines, illustrating how meaning is disclosed through practice rather than measured as variables (Vogl, 2021). Other applications in organisational change contexts demonstrate how interpretive outcomes can be presented as context-sensitive disclosures supported by thick description, an explicit interpretive trail, and reflexive documentation, offering concrete models for enacting trustworthiness beyond member checking (Chambers, 2024).

4.5 Methodological Limitations and Scope of Hermeneutic Phenomenology

While hermeneutic phenomenology offers a powerful framework for producing context-sensitive and theoretically grounded qualitative insights, particularly in organisational and management research, it also entails important methodological limitations that warrant acknowledgement. Its commitment to depth, interpretive richness, and idiographic understanding prioritises nuanced accounts of lived experience over statistical generalisability (Lim, 2025). As a result, findings generated through hermeneutic phenomenology are not intended to be generalised across populations but to offer transferable insights grounded in thick contextual description. In addition, hermeneutic phenomenological research is resource-intensive, requiring prolonged engagement with participants, iterative interpretation, and sustained reflexive practice, which can limit sample size and increase demands on time and analytic labour (Lim, 2025). Interpretation is also inherently shaped by the researcher's positionality and pre-understandings, raising the risk of subjectivity if reflexivity is not rigorously practised. Nevertheless, when these limitations are addressed through transparency, reflexive journaling, iterative analysis, and careful contextualisation, hermeneutic phenomenology remains well-suited for illuminating how meaning is constructed and negotiated in complex, real-world settings such as organisational, managerial, and technological contexts.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

Hermeneutic phenomenology offers a philosophically grounded and methodologically rigorous approach for interpreting lived experience in qualitative research. By foregrounding being-in-the-world, lifeworld, temporality, and

interpretive engagement, this methodology enables researchers to move beyond descriptive accounts toward a deeper understanding of meaning as it is lived and situated. For qualitative research in organisations and management, hermeneutic phenomenology strengthens methodological coherence, reflexivity, and interpretive depth.

Methodologically, this approach entails a set of interrelated practices that guide the research process. Researchers begin by formulating research questions oriented toward lived meaning rather than causal explanation. Data generation prioritises in-depth, dialogical engagement with participants through methods such as phenomenological interviews that invite rich first-person accounts. Throughout the study, researchers engage reflexively with their own pre-understandings, using practices such as reflexive journaling, analytic memoing, and peer dialogue to make interpretive positions visible and open to revision. Analysis proceeds iteratively through the hermeneutic circle, moving between parts and whole, description and interpretation, and participant accounts and contextual understanding, culminating in interpretive writing that seeks to illuminate the essential meanings of experience rather than produce generalisable claims.

Future methodological development would benefit from further articulation of how hermeneutic phenomenology can be adapted to complex empirical settings, including digital, organisational, and technologically mediated contexts. There is scope for developing clearer methodological guidance on integrating hermeneutic phenomenology with abductive reasoning, longitudinal designs, and multi-sited studies, as well as for strengthening transparency in documenting interpretive decision-making. Advancing practical tools for reflexivity, audit trails, and collaborative interpretation would further enhance rigour while remaining faithful to the interpretive foundations of the approach. In this way, hermeneutic phenomenology can continue to evolve as a robust and flexible methodology for qualitative inquiry into lived experience.

5.2 Recommendations

Based on the conceptual synthesis and methodological clarifications advanced in this paper, the following recommendations are proposed for qualitative researchers, reviewers, and editors engaging with studies of lived experience.

First, researchers adopting hermeneutic phenomenology should explicitly articulate their interpretive positioning at the outset of a study. This includes making transparent the ontological and epistemological commitments underpinning the research, as well as the researcher's fore-structures of understanding. Rather than presenting phenomenology as a generic qualitative label, studies should clearly demonstrate how concepts such as being-in-the-world, lifeworld, temporality, and the hermeneutic circle inform research questions, data generation, and analysis.

Second, qualitative studies of lived experience should treat interpretation as integral to all stages of the research process, not as a discrete analytic phase. Researchers are encouraged to demonstrate how interpretation begins during data generation through dialogical interviewing, reflexive engagement, and co-constitutive meaning-making, and how it continues iteratively during analysis. This requires moving beyond thematic description toward interpretive disclosure that situates experience within its social, historical, and practical contexts.

Third, researchers employing hermeneutic phenomenology should strengthen reflexive practice through systematic documentation. Reflexivity should be enacted as an ongoing methodological activity rather than a retrospective statement. Practices such as reflexive journaling, analytic memo-writing, and peer interpretive dialogue should be reported explicitly, showing how pre-understandings are engaged, challenged, and transformed through the hermeneutic process. Such transparency enhances interpretive accountability without resorting to positivist validation criteria.

Fourth, journals, reviewers, and doctoral supervisors are encouraged to evaluate phenomenological studies using philosophically aligned criteria of rigour. Rather than privileging procedural techniques such as member checking, assessments of quality should attend to coherence between ontology, epistemology, and method; the clarity of the interpretive trail; the depth of contextual engagement; and the resonance of findings. Emphasising interpretive trustworthiness over verification supports methodological pluralism while preserving philosophical integrity.

Finally, future methodological research should focus on extending hermeneutic phenomenology into complex empirical settings, including digitally mediated, organisational, and multi-sited contexts. There is particular scope for developing guidance on longitudinal hermeneutic designs, abductive interpretation, collaborative phenomenological analysis, and transparent reporting of interpretive decision-making. Such work would further operationalise hermeneutic phenomenology as a flexible yet rigorous methodological practice capable of addressing contemporary qualitative research challenges.

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Library-based access to reproductive health information from an informatics perspective in Tanzanian universities

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ABSTRACT

This study investigates academic libraries in Tanzania, focusing on the Institute of Accountancy Arusha (IAA) and Tumaini University Makumira (TUMA), to examine access to reproductive health information from an informatics perspective. This study was anchored on three theories. The Health Belief Model Information, Seeking Behavior Theory and The Digital Divide Theory. A cross-sectional descriptive survey design was employed, involving 130 respondents drawn from students, librarians, and other staff. Data were gathered through questionnaires, interviews, and observation and were analyzed using Statistical Package for the Social Sciences (SPSS) alongside thematic content analysis. The findings reveal that access to reproductive health information through academic libraries remains limited, largely due to inadequate subject-specific information resources, insufficient information-searching skills, and constrained Information Communication Technology [ICT] infrastructure. Although some libraries implemented awareness-raising initiatives such as orientation programs and current awareness services, these efforts were insufficient to ensure effective access to and utilization of reproductive health information. Viewed from an informatics perspective, the results highlight gaps in digital information system support and user competencies that hinder equitable access to essential health information. The study concludes that academic libraries at IAA and TUMa possess significant potential to support access to reproductive health information, but this role is not fully optimized. It therefore recommends increased budgetary support, integration of information literacy training into academic curricula, enhancement of ICT infrastructure, and the establishment of counseling units to strengthen library-based access to reproductive health information and promote student health awareness in Tanzanian universities.

Keywords: Academic Libraries, Health Informatics, Library-Based Information Access, Reproductive Health Information, Tanzania

I. INTRODUCTION

Reproductive health is central to human wellbeing, encompassing the ability to have a safe and satisfying sexual life, decide freely about reproduction, and access reliable health information and services (World Health Organization [WHO], 2020). Access to reproductive health information (RHI) is especially crucial for students in higher learning institutions, who face risks of sexually transmitted infections (STIs), unintended pregnancies, and inadequate knowledge of contraceptive methods (Mbugua & Karonjo, 2018; Mcharo et al., 2021). In Tanzania and East Africa, several studies have examined sexual and reproductive health knowledge among students, but limited attention has been paid to the role of academic libraries in providing this information (Lwoga et al., 2021; Chibwae et al., 2018). While institutions like Mzumbe University and Mbeya colleges have been studied, there is little evidence on the extent to which libraries at the Institute of Accountancy Arusha (IAA) and Tumaini University Makumira (TUMa) support access to reproductive health information.

According to Mbugua and Karonjo (2018), research on the effects of education on health has focused primarily on the cross-generational links between parents' education and their children's health; much less attention has been devoted to the contemporaneous links between being a student and remaining healthy or being a student and acquiring specific health-related knowledge and skills. This challenge is reflected in institutional awareness initiatives, such as the slogan at IAA encouraging students to prioritize both academic success and health awareness. It suffices to say that, reproductive health information using easily-accessible materials in the library may help to reduce the existing problem/gap. This is true because information is power. But it is not clearly known if students from various colleges and universities including the Institute of Accountancy Arusha (IAA) and Tumain University Makumira (TUMa) have an access to health information in their library

This gap is critical because academic libraries function as information systems within the informatics field. Their resources, services, and digital infrastructures determine how effectively students can access and utilize RHI.

Thus, this study situates library-based access to reproductive health information within the broader scope of informatics, highlighting how digital and physical collections can contribute to health literacy, equity, and informed decision-making.

In this context, academic libraries function as information systems within the informatics domain, where the organization, storage, retrieval, and dissemination of reproductive health information depend on both digital infrastructure and user competencies (Mbelle et al., 2021). Therefore, access to reproductive health information in university libraries should be understood not only as a health or educational issue, but also as an informatics concern related to information systems design, accessibility, and effective use.

1.1 Research Questions

- i. What reproductive health information resources are available in the academic libraries of the Institute of Accountancy Arusha (IAA) and Tumaini University Makumira (TUMa)?
- ii. To what extent are reproductive health information resources accessible to students in the libraries of IAA and TUMa?
- iii. What challenges do students face when accessing reproductive health information through academic libraries at IAA and TUMa?
- iv. What measures can be adopted by academic libraries to improve access to and utilization of reproductive health information among students at IAA and TUMa?

II. LITERATURE REVIEW

2.1 Theoretical Review

This study is anchored on three theories. The Health Belief Model (Rosenstock, 1974) posits that health behaviors are influenced by perceptions of risk and benefits, shaped by access to accurate information. Information Seeking Behavior Theory (Katz, 1963) explains that individuals actively seek information based on needs and availability of resources. The Digital Divide Theory (van Dijk, 2006) highlights how infrastructural and literacy-related inequalities limit access to information in resource-poor contexts. These frameworks collectively emphasize the importance of both availability and user capacity in accessing reproductive health information.

2.2 Empirical Review

2.2.1 Availability and Accessibility of Reproductive Health Information

Empirical studies from Africa and other developing regions indicate persistent challenges in university students' access to reproductive health information. Evidence from East Africa shows that although students increasingly rely on digital platforms for health-related information, access remains uneven due to inadequate ICT infrastructure, limited digital literacy, and weak institutional support systems (Mbugua & Karonjo, 2018; Lwoga et al., 2017). These findings suggest that the availability of information resources alone does not ensure effective access or use.

2.2.2 Institutional Support and Information Sources

Existing literature highlights the role of educational institutions in facilitating access to health information. Studies by Amour et al. (2021) and Mcharo et al. (2021) demonstrate that access to reproductive health information is influenced by the presence of reliable information sources and supportive learning environments. However, much of this research focuses on health facilities or informal online sources, with limited emphasis on academic libraries as structured information systems within universities.

2.2.3 Information-Seeking Skills and System Usability

From an informatics perspective, access to reproductive health information is further shaped by users' information-seeking skills and system usability. Mbelle et al. (2021) and Lwoga et al. (2017) show that inadequate search skills, socio-cultural stigma, and poorly designed digital systems constrain effective access, while information literacy training and robust digital repositories enhance utilization.

2.2.4 Research Gap

Despite this growing body of research, limited empirical evidence exists on how academic libraries in Tanzanian universities support access to reproductive health information within an informatics framework. This study addresses this gap by examining academic libraries at the Institute of Accountancy Arusha (IAA) and Tumaini University Makumira (TUMa), thereby contributing context-specific evidence on library-based access to reproductive health information.

III. METHODOLOGY

3.1 Research Design

Fraenkel and Wallen (2020) defined study design as a detailed outline of how a study is done. The study design and sampling for a study typically include things like how the data for the study's collected what tools are used to collect the data for the study and the ways the data, from the study will be looked at. In this study the researcher used a cross-sectional, descriptive survey research design to collect qualitative and quantitative data through the use of a standardized questionnaire with both close and open-ended questions, interviews, and observation, regarding the availability and accessibility of reproductive health information by students in academic Libraries, with particular reference to the Institute of Accountancy and Tumaini University Makumira libraries in Arusha, Tanzania.

3.2 Study Area

The study area was the Institute of Accountancy Arusha (IAA) and Tumaini University, Makumira (TUMa). The Institute of Accountancy Arusha and Tumaini University Makumira were chosen for their diverse student populations, which include people from various socioeconomic origins, locations, and cultural contexts. This variety is expected to provide a better understanding of the elements that influence the availability and accessibility of reproductive health information. Therefore, the researcher was motivated to find out whether information on reproductive health is available at the respective libraries for students use, in order to prepare a healthy generation of elites.

3.3 Population and Sampling Procedure

Sampling technique is the method of selecting a number of individuals or objects from a population in which selected group contains elements representative of the characteristics found in the entire group. Kothari, (2019) defines sampling as the process of selecting a subset of units from the population. This study used Simple Random and Purposive Sampling techniques to select the sample for this study. Simple Random Sampling is a subset of individuals (a sample) chosen from a larger set a population (Kothari 2019). This study employed a cross-sectional descriptive survey design, collecting both quantitative and qualitative data. The study area included IAA and TUMa, chosen for their diverse student populations. A total of 130 respondents participated: 114 students selected through simple random sampling, and 16 librarians, counselors, and deans selected purposively. Primary data was collected using questionnaires, interviews, and observation, while secondary data was obtained from published works. This technique helped the researcher to gain access to all the potential information about the study. Also, the method was used due to the nature of this study, which demands collection of data from informed and experienced persons in the universities involved in the study.

3.4 Data Collection Methods

Kabir and Mahtab (2023) and Teddlie and Tashakkori (2020), define data collection as the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes. This study collected both primary and secondary data. Primary data were collected using open as well as closed ended questioners and face to face interview methods.

3.5 Data Analysis

Rwegoshora (2014) defines data analysis as the ordering of data into constituent parts in order to obtain answers to research questions, with the aim of arriving at some general principles that can be applied to other situations. Data were analyzed using SPSS (version 20) for descriptive statistics, and qualitative responses were coded thematically

3.6 Ethical Considerations

Ethical considerations were observed throughout the study. Participation in the study was voluntary, and informed consent was obtained from all respondents prior to data collection. Participants were informed of the purpose of the study and their right to withdraw at any stage without any consequences. Anonymity and confidentiality were assured by excluding personal identifiers from the data collection instruments and reports. Data collected were used strictly for academic purposes. Permission to conduct the study was obtained from the relevant institutional authorities at the Institute of Accountancy Arusha and Tumaini University Makumira.

IV. FINDINGS & DISCUSSION

4.1 Availability and Accessibility of Reproductive Health Information

Objective of the study sought to examine the availability and accessibility of reproductive health information by students at the libraries of the Institute of Accountancy Arusha and Tumaini University Makumira (TUMa). The terms availability and accessibility complement each other. It is the availability which determines accessibility. Respondents were asked to state on the availability and accessibility of reproductive health information at their respective libraries. The information sought was considered important because the availability and accessibility of reproductive health information held in the respective libraries is a vitally valuable resource to students in terms of enabling them realize the risks posed by unsafe sex.

Findings showed that a majority (52.4%) of respondents reported that reproductive health materials were scanty in their libraries, while (31.1%) said they were unavailable. Only a small proportion acknowledged their presence. These results highlight a critical gap in library collections. From a theoretical standpoint, this aligns with the Digital Divide Theory, demonstrating that infrastructural limitations hinder equitable access.

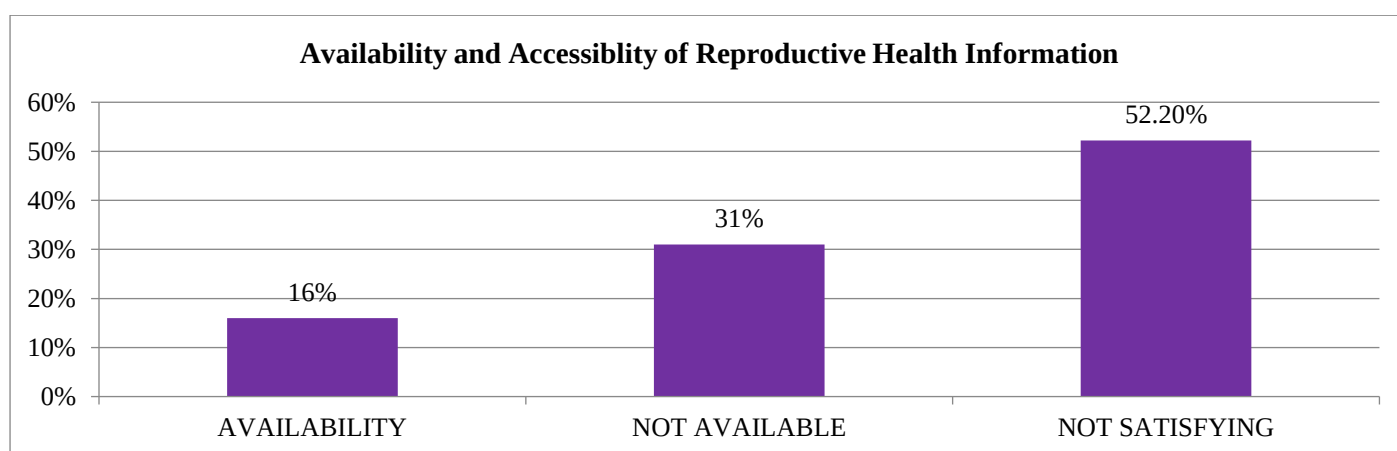


Figure 1

Availability and Accessibility of Reproductive Health Information

Based on these findings it is clear that the majority of the respondents agreed that materials related to reproductive health information was not held by the respective libraries and therefore they had little understanding on the availability of such information in their libraries. However it is also important to note that, although the number of respondents 13(32%), who agreed on the availability of materials related to reproductive health information in their respective libraries is small, it is nonetheless significant in terms of acknowledging that some effort towards acquiring such information had been made by the respective libraries, albeit in a small way.

4.2 Challenges Faced by IAA and TUMa students when Accessing Reproductive Health Information and Proposed Suggestions to Counter the Challenges

Accessing reproductive health information can present challenges for students, particularly those from underrepresented or marginalized backgrounds. By acknowledging the challenges and outlining potential solutions, it is possible to embark on the right path towards resolving the challenges at hand Challenges Faced in Accessing Reproductive Health Information. Respondents were asked to state the challenges they faced when accessing reproductive health information at IAA and TUMa. The responses are summarized in Table 1.

Table 1

Challenges in Accessing Reproductive Health Information

Challenges	Frequency	Percentage
Poor knowledge on information searching skills	28	27.2%
Feeling shy to ask the information about Reproductive health	5	4.9%
Shortage of information sources	48	46.6%
There is no centre or counselling unit around the Institute	20	19.4%
There is no reference librarian to direct the users on the ways of accessing RHI	2	1.9%
Total	103	100%

Challenges identified included shortage of resources (46.6%), poor search skills (27.2%), lack of counseling

units (19.4%), and student reluctance due to stigma (4.9%). Such barriers underscore the relevance of the Information Seeking Behavior Theory, which emphasizes the need for supportive environments to enhance information use. Students suggested solutions such as increased budget allocations, integration of RHI into the curriculum, and improved ICT infrastructure. These align with the Health Belief Model, as better access and literacy can positively shape perceptions and behaviors

4.3 Proposed Solutions to the Challenges

Respondents were asked to propose solutions which will mitigate those challenges associated with the availability and accessibility of RHI. This question was directed to students because it is believed that they understand the challenges they face when accessing the reproductive health information. Responses are summarized in Table 2.

Table 2

Proposed Solutions to the Challenges (N=103)

Solution to the challenges	Frequency	Percentage
Librarians should introduce information literacy training to all library users	6	5.8%
Institutions should integrate aspects of Reproductive Health sciences into their Curriculum as a required one semester/term course.	14	13.6%
Librarians should establish information literacy to all library users	12	11.7%
Adequate Funds be Provided to support library budget for the acquisition and development of core collection of library/information resources, pertaining to Reproductive Health.	30	29.1%
Institutions should establish Counselling Units with qualified personnel, in order to assist students on matters of reproductive health concerns.	9	8.7%
Information Search skills be a core aspect of Information Literacy Training program to be Provided by the institute/ university libraries.	28	27.2%
Total	103	100%

Findings in Table 5.1.2 show that 30(29.1%) out of 103 respondents proposed the allocation of an adequate budget to the libraries, for the acquisition and development of reproductive health information resources, followed by 28(27.2%) respondents who proposed the provision of information search skills training through library IL programs, 14(13.6%) Institutions should integrate aspects of Reproductive Health sciences into their Curriculum, 12(11.7%) proposed the provision of user education on how to search information, 9(8.7%) proposed the establishment of Counselling Units at institutions of higher learning.

The findings also revealed the suggestion that funds be provided through a budget, for the acquisition and development of core collection of reproductive health sciences in the university libraries, in order to support the new curriculum. This would minimize or solve the problem concerning the accessibility and utilization of reproductive health information resources by students at the Institute of Accountancy Arusha (IAA) and Tumaini University Makumira (TUMA) libraries, specifically, and generally across university campuses, nationwide. This should go hand in hand with coordinating the provision of training on searching skills to students, which is likely to solve the problem of accessing and utilizing Reproductive Health Information resources.

In this respect one Interviewee commented that:

'The library orientation should go beyond the expository of establishing a program to orient library users on online databases because currently the IT has tremendously transformed the world so much that a lot of information can be accessed online vide databases.' (Respondent from IAA) 23th October 2025

Also,

"The institutions should subscribe to on line data databases like "Electronic Care Records and the World Health Organization journals Online" on which they will access get information about health care in general to the schools or institutions on which the problem of Funding will be solved accordingly". (Respondent from IAA) 23th October 2025

Generally and based on the afore going findings, one would consider a three- pronged approach towards establishing the parameters for putting in place the infrastructure, in order to realize the institutional/national goal for integrating Reproductive Health Sciences into the university curriculum. In this process, the role of librarians, as stake holders and resource managers/ advisors, will be crucial in determining the information resources required to run university academic courses. Firstly, one would envisage the need for collaboration between academic staff and library staff on campus, to sensitize top institution/university management, into realizing the need to integrate Reproductive Health sciences into the institution curriculum, as a cross cutting concept and a subject matter of

serious national concern.

When the proposal to launch a new course is accepted, through academic organs including senate, academic planning committees, and others, and the modality of its implementation agreed upon, that will cause for consideration of the teaching and learning resources, including the creation of a library budget, to enable the program take off. As a new course, it will require financial resources to take care of teaching and learning resources, including the deployment of a skeleton staff, to coordinate or run/manage the program on the institutions campus., Most importantly though, as for the introduction of any new courses in the university, it may require the creation of a core collection of information resources, for both print and non-print/electronic resources on reproductive health sciences, as well as strengthening the campus IT infrastructure for the provision and utilization of these information resources, in order to meet the instructional and learning information needs of the students in the new course program.

4.4 Summary of the Key Findings

The study assessed the availability and accessibility of reproductive health information to students at the Institute of Accountancy Arusha (IAA) and Tumaini Makumira University (TUMa) libraries. Specifically the study sought to establish the demographic profile of students at IAA and TUMa in Arusha, Tanzania; examine the availability and accessibility of reproductive health information by students at the libraries of the Institute of Accountancy and Tumaini University Makumira (TUMa) in Arusha, Tanzania; find out the methods used to promote the availability and accessibility of reproductive health information at the Institute of Accountancy (IAA) and Tumaini University Makumira (TUMa) libraries in Arusha, Tanzania; and identify the challenges faced by IAA and TUMa students in accessing reproductive health information and propose suggestions for addressing the challenges encountered

The researcher considered gender, age group and education level of respondents. In this study, findings showed that the number of female respondents 69 (67%) who participated in this survey, surpassed that of male 34(23%) participants. This situation did not affect the study because the female participants participated fully in this study. On the education level of respondents who participated in the study (Table 4.2), findings showed that it comprised certificate holders 31(30.1); diplomas 27(28.2%); first degree holders 22(21.6%); master's degree 19(18.5%) holders as well as PhD holders 2(1.9%). This implies that the data collected from these respondents were worthy and trusted.

4.4.1 Discussion of finding on exciting literature

The present study found that reproductive health information resources in the academic libraries of IAA and TUMa were limited in both availability and accessibility. This empirical evidence confirms earlier observations by Mbugua and Karonjo (2018) and Mcharo et al. (2021), who reported that inadequate institutional information provision contributes to low reproductive health awareness among university students.

Similarly, the influence of ICT infrastructure and information literacy identified in this study supports the findings of Lwoga et al. (2017), who emphasized that effective access to health information requires both technological capacity and user competencies.

Furthermore, this study revealed that poor information-searching skills restricted students' utilization of reproductive health resources. This result is consistent with Mbelle et al. (2021), who demonstrated that limited information literacy reduces meaningful engagement with available health information platforms.

Although previous studies acknowledged these challenges, the present study extends existing literature by demonstrating that academic libraries in Tanzanian universities remain underutilized as formal informatics systems for reproductive health information dissemination. This contribution provides context-specific evidence that strengthens understanding of library-based reproductive health information access within higher learning institutions.

4.5 Availability and Access to Reproductive Health Information, Digital Divide Perspective

The results indicate that reproductive health information resources were neither sufficiently available nor easily accessible in the academic libraries examined. This situation can be interpreted through the Digital Divide Theory (van Dijk, 2006), which explains inequalities in information access as a consequence of uneven technological capacity and infrastructure. In the present study, inadequate ICT facilities and limited electronic resources restricted students' opportunities to obtain reproductive health information, suggesting that structural and technological gaps continue to limit equitable information access within higher learning institutions.

4.6 Information-Searching Skills and Access, Information Seeking Behavior Perspective

Findings further demonstrate that limited information-searching skills posed a significant barrier to students' access to reproductive health information. In line with the Information Seeking Behavior Theory (Katz, 1963), effective access to information depends largely on users' competencies, prior experience, and familiarity with information systems. Students who lacked adequate search skills were therefore less able to identify, retrieve, and use

relevant library resources, even in situations where such resources were available.

4.7 Awareness, Use, and Health Decisions, Health Belief Model Perspective

Viewed through the Health Belief Model (Rosenstock, 1974), insufficient access to reproductive health information may adversely affect students' awareness and perceptions of reproductive health risks. Limited information exposure can reduce perceived susceptibility and perceived benefits of preventive actions, thereby weakening motivation to seek reliable health information or related services. Consequently, enhancing access to credible reproductive health information through academic libraries has the potential to support informed decision-making and promote positive health behaviors among university students.

4.8 Informatics Perspective Integration

On the other hand, if the analysis was conducted from the informatics perspective, the implications of the findings would lie in the fact that the issue of reproductive health information availability in academic libraries depends on the intersection of information systems, technology infrastructure, and skills. The limited availability of ICT facilities and resources limited the capabilities of library information systems, and the low level of informatics literacy among the students made it difficult for them to access the desired information. The findings of this study imply the importance of addressing the issue of reproductive health information availability and access as envisaged by Amour et al. (2021) and Mcharo et al. (2021) through improving the library information system and providing informatics skills to the students.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study examined library-based access to reproductive health information at the Institute of Accountancy Arusha (IAA) and Tumaini University Makumira (TUMa) from an informatics perspective. The findings indicate that reproductive health information resources in the academic libraries studied were limited in both availability and accessibility. Inadequate ICT infrastructure, insufficient electronic resources, and limited information-searching skills among students emerged as key barriers to effective access and use.

From an informatics standpoint, the study demonstrates that access to reproductive health information is influenced by the interaction between library information systems, digital infrastructure, and user competencies. Academic libraries therefore play a potentially significant but underutilized role in supporting students' reproductive health information needs.

5.2 Recommendations

The study recommends strengthening ICT infrastructure, expanding digital and print reproductive health collections, and integrating information literacy training into library services and academic curricula. These measures would enhance equitable access to reproductive health information and support informed decision-making among university students.

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Factors influencing public project sustainability in Tanzania at the Ministry of Constitutional and Legal Affairs

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ABSTRACT

This study aimed to evaluate the determinants of project sustainability in public organizations, focusing on a case study of initiatives executed by the Ministry of Constitutional and Legal Affairs (MOCLA). The study aimed to ascertain the impact of stakeholder engagement on project sustainability, evaluate the influence of government funding on project sustainability, and analyze the efficacy of monitoring and evaluation mechanisms in promoting project sustainability. The study was guided by stakeholder theory and sustainability theory. The methodology employed to achieve the aims of this study was a mixed-method approach incorporating both quantitative and qualitative techniques. Data collection was conducted using questionnaires and interview guides from a total sample of 105 respondents, all of whom were MoCLA staff. Descriptive, inferential, and regression statistical methods were employed to analyze the data. The results were illustrated through figures and tables, utilizing frequency and percentage to delineate the data. Results regarding the initial objective revealed that stakeholder engagement was a primary determinant of public project sustainability. The data indicate that government support significantly contributes to the project's viability. The study concluded that monitoring and assessment mechanisms are the primary elements leading to project sustainability. Consequently, the study determined that for the nation to attain sustainability in various programs, it must consider the participation of all relevant stakeholders. This necessitates the eradication of all sorts of meddling by senior political leaders in district or village development programs, thereby establishing a clear demarcation between politicians and civil officials.

Keywords: MOCLA, Public Project Sustainability, Project Performance, Stakeholder Participation, Tanzania

I. INTRODUCTION

Every nation must initiate programs aimed at enhancing their economies and communities. They want to help all the countries in the world grow their economies. They need to meet a lot of different needs, such as building more infrastructure, improving healthcare, education, and the legal system. Through its ministries, the Tanzanian government runs a number of public programs to help people and encourage long-term growth. But it's still a big worry that these projects will not last long (United National Development Programmes [UNDP], 2024). The sustainability of public projects in Tanzania, including those under MoCLA, is influenced by several factors, including stakeholder engagement, government funding, and the effectiveness of M&E frameworks. Addressing these challenges is crucial for ensuring that public projects continue to deliver benefits to the population and contribute to the country's development goals (Faki et al., 2024). Effective stakeholder engagement is essential for ensuring that all parties' needs and interests are considered during a project's planning and implementation stages (Ezeh et al., 2024).

Engaging stakeholders, including beneficiaries, government officials, and development partners, fosters a sense of ownership and accountability, which is crucial for the long-term success of projects. Studies have shown that projects with active stakeholder participation are more likely to be sustainable (Malual et al., 2024). On the other hand, sustainability of public project is affecting by availability and adequacy of funding. Government contributions, often complemented by funding from development partners, are essential for successfully implementing and maintaining public projects (Ramolobe & Khandanisa, 2024). However, many projects suffer from insufficient and inconsistent funding, leading to delays, reduced scope, and compromised quality (Puri et al., 2025). Adequate funding is necessary for the initial implementation and ongoing operations and maintenance to ensure that projects continue to deliver their intended benefits (Clark et al., 2018). This study aims to explore these determinants in detail, providing insights and recommendations for enhancing the sustainability of public projects in Tanzania. In this case, sustainability means that a project can keep giving people the benefits it was supposed to give them for a long time, even after the first implementation period (UNDP, 2024). Public programs in Tanzania are very important for improving the economy and the lives of the people who live there.

The Ministry of Constitutional and Legal Affairs runs a number of programs to make the legal and constitutional systems better so that the rule of law and good governance can happen. A lot of people are still worried about how long

these programs will last, even though they are very important. A lot of public programs do not help people in the long run because they do not have enough money, people, or good Monitoring and Evaluation (M&E) systems. One of the biggest problems in Tanzania is that the work that the government does not always last. People who use programs that do not meet the needs of the community do not feel like they own or support them as much (Tumpale, 2025). The government does not always support these programs, which makes things worse by causing delays and inconsistencies (Mollet & Slawe, 2024). There are not good ways to keep an eye on and evaluate the project, so it's hard to quickly find problems and make the changes that are needed. This puts the project's long-term viability at risk (Enjei & Valery, 2025).

Kabonga (2019) and other studies show how important it is to get enough money, keep an eye on things, and evaluate them carefully. But there is lack of enough in-depth research that looks at how all of these parts work together to affect the long-term success of public projects in Tanzania. MoCLA is in charge of a lot of projects, but there is scanty real-world proof of how these drivers work together. It's hard to make good plans to keep projects going for a long time when you do not know enough about them. The goal of this study was to fill a big gap in knowledge and help Tanzania reach its development goals by giving practical information about what makes public projects last.

1.1 Research Objectives

- i. To ascertain the impact of stakeholder participation on project sustainability.
- ii. To evaluate the impact of government funding on project sustainability.
- iii. To assess the efficacy of monitoring and evaluation systems in guaranteeing project sustainability.

II. LITERATURE REVIEW

2.1 Theoretical Review

The study of theoretical literature lays the groundwork for understanding the theories, models, and ideas that are relevant to the issue at hand. Stakeholder Theory and Sustainability Theory all helped shape this study.

2.1.1 The Stakeholder Theory

Freeman (1984) came up with Stakeholder Theory, which is a way of looking at capitalism that focuses on how a business interacts with its customers, suppliers, employees, investors, communities, and other stakeholders. The thesis says that a business should create value for all of its stakeholders, not just its shareholders. This idea makes it clear how important it is to consider the needs of all stakeholders who are affected by an organization's actions. Stakeholder theory helps academics find the main stakeholders in public projects, figure out what they want, and come up with ways for them to be involved that will make the project last longer. Including the views and interests of stakeholders in project planning and decision-making can make the project more legitimate and help it last longer. Our theory is relevant to our study because it shows how important it is to involve stakeholders in order to make sure that development programs last.

2.1.2 The Theory of Sustainability

The theory of sustainability stresses the need to achieve long-term environmental, social, and economic viability (Correia, 2019). Levy and Rothenberg came up with sustainability theory in 2000. It gives us ways to look at the effects of projects, include sustainability principles in planning, and measure progress toward goals for sustainable development (Bonnedahl et al., 2022). Researchers use sustainability theory to look at the environmental, social, and economic parts of public projects and make sure that these projects improve the well-being of communities and ecosystems (Correia, 2019). This theory is important to the study because it explains the things that affect the sustainability of a project and how they help make sure that the results are sustainable.

2.2 Empirical Review Basing on Objective

2.2.1 How Stakeholder Engagement Helps Projects Last

In public organizations, it is very important to involve stakeholders in order to evaluate the sustainability of development projects. Recent studies show how important it is to involve stakeholders in making sure that projects are successful in the long term. Kayijuka (2021) looked into how communities can be involved and monitored throughout the life of a project. They found that when local communities do not participate enough, projects tend to be less sustainable, especially in important areas like water supply initiatives. The results show that stakeholders need to be actively involved throughout the project in order to build ownership and ensure the long-term success of interventions. Faki et al. (2024) say that their study on how important it is for stakeholders to be involved in the building of schools in Tanzania was done in the Mlali and Mzumbe wards of Morogoro. The study used both qualitative and quantitative methods, and it used triangulation to gather data. It ended with results that show how important and useful expert knowledge is, depending on the community's ability to participate in the intervention, even in small ways. A qualitative study by Naku et al. (2021) found that community involvement in study programs takes many forms at different stages

of the project cycle. This study aims to clarify the role of stakeholder involvement in the long-term success of donor-funded projects. Kabonga (2019) said that complete M&E frameworks help project stakeholders keep track of progress, spot problems, and make smart choices to make the project more sustainable. Even though these studies show how important it is for stakeholders to be involved, they often do not look closely at how different levels and types of stakeholder engagement affect the long-term success of public organizations' projects. Naveenkumar et al. (2025) said that a project is only considered sustainable if it has exit strategies. They also said that to achieve sustainability, the community must be involved and the local government must be able to deliver project benefits effectively. Therefore, collaboration is necessary in any intervention. Some researchers have found a positive link between participation and the long-term success of a project. Dhillon and Moncur (2023) looked at small farmer programs in 10 African and Latin American countries. They found that small farmers were more likely to be willing to put money into the programs if they were involved in making decisions about them.

H1: Getting stakeholders involved is linked to the project's long-term success.

2.2.2 Government Money Help for Keeping Projects Going

Government funding is very important for development programs, especially for government agencies that are in charge of carrying out important projects. Previous studies have shown that community involvement and ownership are two factors that affect the long-term success of a project. Dongol et al.'s (2021) study looked at the factors that affect community ownership of water projects in Kenya. It found that there is a positive link between community involvement and project ownership. Longo et al. (2025) said that sustainability requires constant analysis and the ability to adapt to new methods. Without a long-term commitment from all parties, it is unrealistic to expect sustainability. More emphasis should be placed on creating indigenous institutions that see sustainability as a key factor in project success. A lot of studies that have been looked at show that there is no strong link between getting enough money and keeping group projects going. However, Cernea (1991) looks at 25 World Bank-funded projects that were looked at again years after the funding stopped to see how long they would last. It was found that 13 of these projects could not continue because they did not have enough money. The World Bank's (2007) study found that most youth enterprise programs do not last because they do not get enough money and this is made worse by the high cost of running a business. Ndunguru et al. (2020) agree with the World Bank's finding that Nigeria's youth enterprise policies and programs have not met the necessary developmental framework. He says that high taxes and high costs for businesses are killing youth businesses.

H2: The amount of government funding a project gets is positively linked to its long-term success.

2.2.3 Methods for Assessment and Evaluation Helping the Project Last

It is important to use monitoring and evaluation (M&E) methods to keep track of the progress and effects of development programs, hold people accountable, and encourage learning and growth. Kabonga's (2019) study on monitoring and evaluation methods in water projects and other previous research have shown how important field visits and meetings are for better project oversight and assessment. Hardlife and Zhou (2013) used the UNDP to look into how global development organizations use monitoring and evaluation systems. They found that there is a frustrating bias toward quantitative assessment methods and those findings from previous initiatives are rarely used on purpose. Kabeyi (2019) also say that good financial leadership, enough education, good leadership, and thorough screening and evaluation are the most important factors in determining whether a project is feasible. Mabizela and Zwane (2023) say that using M and E practices at the right time and in the right way improves project results. Stiglitz and Walsh (2020) saw that the program cycle includes community involvement and building up local skills. The community should be directly involved in figuring out what they need, setting program goals, carrying out activities, and keeping an eye on and evaluating the program. The evaluation can be greatly affected by the technical skills and organizational savvy of the people doing the evaluations, as well as the importance and involvement of human resources in decision-making and their motivation to carry out the decisions that come out of the evaluations (Njoroge & Yaro, 2023). Kwamboka and Nyaberi (2020) stress that this should go beyond regular training to being a way of learning that makes the evaluation process better for the company.

H3: There is a positive link between Oversight and Assessment Contribution and Project Sustainability.

III. METHODOLOGY

3.1 Research Design and Sampling Methodology

The descriptive study design was selected due to its capacity to systematically delineate a phenomena, situation, or population (Kothari, 2004). The descriptive design facilitates the accurate profiling of events, personalities, and situations associated with the elements influencing project sustainability in public organizations. The descriptive study design facilitated the utilization of both qualitative and quantitative methodologies, which were employed in this research. The research was carried out at the Ministry of Constitutional and Legal Affairs in Tanzania. This was chosen since the ministry has multiple programs, some of which are entirely funded by the government, while others rely on development partners. This offered a favorable insight into the elements that lead to project sustainability. Additionally, the ministry implemented a monitoring and evaluation (M&E) structure that elucidated its contribution to project sustainability. This was due to their possession of more dependable information regarding the viability of the performed undertakings. The study's target population was 128 staff members from the offices in Dar es Salaam and Dodoma (MoCLA Report, 2021). This study employed simple random sampling to choose MoCLA staff who served as respondents to the questionnaire. The researcher positioned himself at the door of the MoCLA offices and disseminated the questionnaire to the staff members arriving for work. Individuals who arrived first were provided with a questionnaire to complete until all questionnaires were entirely distributed. Purposive sampling was employed to choose management personnel who participated in this study for interviews. The purposive sample strategy enabled the researcher to utilize judgment in selecting a participant most relevant to the research objective (Creswell, 2014). The sample size was calculated using a formula established by Yamane (1967) with a 5% margin of error. A sample of 97 people was utilized in this investigation, as indicated in Equation 3.1.

$$n = \frac{N}{1+N(e)^2} \dots\dots\dots (1)$$

Where;

e (margin of error) = 0.05

n = number of derived sample size to be calculated

N = total number of target population = 128.

Consequently, the minimum sample size is given by;

$$n = \frac{128}{1 + 128(0.05)^2} \approx 97$$

Consequently, the calculated sample size for the planned study, as per the formula, was 97, which participated in answering the questionnaire. Additionally, there were eight other respondents that participated in the interview. The entire sample size comprised 105 people.

3.2 Evaluation of Quantitative Data

This study employed cross-tabulation alongside descriptive statistics (means, standard deviations, frequencies, and percentages) to examine the quantitative data for each specific target using Statistical Package for Social Sciences (SPSS) version 25. The quantitative data was examined utilizing descriptive statistics, including frequencies, means, standard deviations, and regression analysis. Descriptive statistics, ANOVA, and multiple regression analysis were employed to investigate the determinants of project sustainability at the Ministry of Constitutional and Legal Affairs. The multiple regression analysis was delineated as follows:

$$Y_{PS} = \alpha + \beta_1 X_{SEC} + \beta_2 X_{GFC} + \beta_3 X_{MEPC} + \varepsilon \dots\dots\dots (2)$$

Where:

Y_{PS} = Project Sustainability

β_s = Partial regression coefficients

X_{SEC} = Stakeholders Engagement Contribution

X_{GFC} = Government Fund Contribution

X_{MEPC} = Monitoring and Evaluation Practice Contribution

ε = Error term

α = Constant

IV. FINDING and DISCUSSION

4.1 Demographic Attributes of the Participants

This survey anticipated a total of 105 responses, consisting of 97 operational staff and 8 management staff. The demographic attributes of the MoCLA staff participating in this study encompassed gender, age, marital status, educational attainment, and years of experience. The following aspects are presented here.

Table 1

Demographic Information of Responses (n= 105)

Demographic information	Frequency	Percentages
Gender		
Male	99	94
Female	6	6
Age		
20-30	20	19
31-40	44	42
41-50	30	29
51 and above	11	10
Level of Education		
Diploma	20	19
Bachelor Degree	55	52
Master Degree	25	24
Doctorate Degree	5	5
Years of Experience		
1-5	60	57
6-10	35	33
10 years and above	10	10
Involvement in project		
Yes	70	67
No	35	33

4.2 Impact of Stakeholder Engagement on Project Sustainability

The research aimed to assess the impact of stakeholder involvement on project sustainability. Respondents were requested to evaluate the impact of stakeholder engagement on project sustainability at the Ministry of Constitutional and Legal Affairs by picking the factors that most significantly affect stakeholder involvement. Their responses were essential in assessing the Determinant of Public Project Sustainability. Participants were instructed to evaluate their responses using a 5-point Likert scale, as detailed in Table 2. Key: SA=Strong Agree, A=Agree, N=Neutral, D=Disagree, SD=Strong Disagree.

Table 2

Stakeholders Engagement on Project Sustainability

Response	SA		A		N		D		SD	
Factors	F	%	F	%	F	%	F	%	F	%
Stakeholders' engagement during the designing of the project has impact on promoting sustainability of the project	20	19	40	38	30	29	10	09	05	05
Stakeholder engagement in the implementation of the project has an effect on promoting sustainability of the project	10	10	45	43	40	38	07	07	03	02
Stakeholder engagement in the monitoring and evaluation has a contribution in sustaining project sustainability	15	14	50	48	30	29	06	06	04	03
Stakeholders' engagement in all project lifecycle has direct effects on promoting project sustainability	14	13	50	48	35	33	05	05	01	01
Stakeholders who are aware about the project results and they have participated in one way has impacts on promoting project sustainability	20	19	60	57	15	14	07	07	03	03

4.2.1 Engagement of Stakeholders during the Project Design Phase Influences the Sustainability of the Project

The study findings presented in Table 2 revealed that 29 percent of respondents had a "Neutral" stance about the impact of stakeholder engagement during the project's design on promoting sustainability. Nineteen respondents "Strongly Agreed" that stakeholder engagement during project design impacts sustainability, while thirty-eight percent "Agreed" on the same matter. Nine percent of the respondents "Disagreed" that stakeholder engagement during the project's design impacts project sustainability, while five percent "Strongly Disagreed" with this assertion.

4.2.2 Stakeholder Engagement during Project Implementation Influences the Promotion of Project Sustainability

The survey found that 38 percent of respondents were "Neutral" on the impact of stakeholder engagement in the project's implementation on promoting sustainability. Approximately 10 respondents "Strongly Agreed" that stakeholder engagement in project implementation influences the promotion of project sustainability, while 43 percent of respondents "Agreed" on the same matter. Seven percent of respondents "Disagreed" that stakeholder engagement in project implementation affects project sustainability, while two percent "Strongly Disagreed" with this assertion.

The findings from Table 2 indicate that the majority of respondents "Agreed" that stakeholder engagement in project implementation positively influences project sustainability, followed by those who were "Neutral." The third group comprised individuals who "Strongly Agreed" that stakeholder engagement in project implementation influences sustainability. The fourth group consisted of respondents who "Disagreed," while the final group included those who "Strongly Disagreed." These results align with those of Kayijuka (2021), indicating that community involvement significantly influences project sustainability during implementation.

4.2.3 Stakeholder Engagement in Monitoring and Evaluation Contributes to the Sustainability of Projects

The study findings presented in Table 2 revealed that 29 percent of the respondents had a "Neutral" stance about the role of stakeholder engagement in monitoring and evaluation to project sustainability. Approximately 14 respondents "Strongly Agreed" that stakeholder engagement in monitoring and evaluation contributes to project sustainability, while 48 percent of respondents "Agreed" on the same matter. Six percent of respondents "Disagreed" that stakeholder engagement in monitoring and evaluation contributes to project sustainability, while three percent "Strongly Disagreed" with this assertion. These findings are integral to those reported by Kayijuka (2021), who determined that monitoring and evaluation significantly contribute to project assurance.

4.2.4 Engagement of Stakeholders across the Whole Project Lifecycle Directly Influences the Promotion of Project Sustainability

The study revealed that 33 percent of respondents were "Neutral" on the impact of stakeholder engagement throughout the project lifecycle on enhancing project sustainability. Approximately 13 respondents "Strongly Agreed" that stakeholder engagement throughout the entire project lifecycle directly influences project sustainability, while 48 percent of respondents "Agreed" on the same matter. Five percent of respondents "Disagreed" that stakeholder engagement throughout the entire project lifecycle directly influences project sustainability, while one percent "Strongly Disagreed" with this assertion. One of the interviewed managers affirmed this by stating: "The success of any project relies not only on technological precision but also on the acceptance by all participating members." Experience indicates that several project decisions made without adequate consultation with beneficiaries and stakeholders, as well as insufficient information, will lead to unsustainable initiatives. The results were analogous to those reported by Karl (2018), who found that stakeholder engagement throughout the project life cycle, from inception to completion, significantly contributes to project sustainability.

4.2.5 Stakeholders who are informed about the Project Outcomes and have participated in some Capacity Influence the Promotion of Project Sustainability

According to Table 2 the researcher found that 14 percent of respondents were "Neutral," indicating that stakeholders who are informed about the project outcomes and have participated in some capacity influence the promotion of project sustainability. Nineteen respondents "Strongly Agreed" that stakeholders who are informed about the project outcomes and engaged in some capacity influence project sustainability, while fifty-seven percent of respondents "Agreed" that such stakeholders have an impact on promoting project sustainability. Seven percent of respondents "Disagreed" that stakeholders who are informed about the project results and participate in some capacity influence project sustainability, while three percent "Strongly Disagreed" with this assertion. The results align with those of Mollel and Slawe (2024), who established a significant correlation between project sustainability and stakeholder participation, indicating that increasing stakeholder awareness of the project influences their involvement in its implementation.

4.2.6 Government Financial Contributions to the Advancement of Project Sustainability

The second purpose of the study was for respondents to evaluate the government's financial commitment to the sustainability of the project. Participants in this study were instructed to evaluate these indications by selecting one option on a Likert scales ranging from strongly disagree to strongly agree. The findings were displayed in Table 3.

Table 3

Government Funding Contributions in the Development of Project Sustainability

Response	SA		A		N		D		SD	
Factors	F	%	F	%	F	%	F	%	F	%
The project financed by the government without development partners' contributions tends to be sustainable after the project lifecycle	15	14	20	19	55	52	10	10	05	05
The project financed by both the government and the development partner have higher possibility of realising project sustainability	10	10	30	29	55	52	07	6	03	03
The project financed by development partners without government contributions tend to have higher possibility of realizing project sustainability	15	14	30	29	50	48	06	05	04	04
Selection appropriate modality of project financing tend to contribute toward project sustainability	10	10	30	29	59	56	05	04	01	01
Multi stakeholder financing of the project tend to contribute toward project sustainability contribute toward project sustainability	10	10	20	19	65	62	07	07	03	02

4.2.7 Government-Financed Projects without Contributions from Development Partners Tend to Exhibit Sustainability Post-Project Lifecycle

The data in Table 3 indicate that 52 percent of respondents expressed a "Neutral" stance about the sustainability of government-financed projects without contributions from development partners after the project lifecycle. Nineteen respondents "Agreed" that government-financed projects, devoid of contributions from development partners, are likely to be sustainable post-project lifecycle, while fourteen percent "Strongly Agreed" with this assertion. Ten percent of respondents "Disagreed" that government-financed projects, lacking contributions from development partners, are likely to be sustainable post-project lifecycle, while five percent "Strongly Disagreed" with this assertion.

4.2.8 Projects Financed by both Government and Development Partners have a Greater Likelihood of Achieving Sustainability

The findings presented in Table 3 indicate that 52 percent of respondents expressed a "Neutral" stance about the likelihood of project sustainability when financed by both the government and development partners. Approximately 29 respondents "Agreed" that projects funded by both the government and development partners have a greater likelihood of achieving sustainability, while 10 percent of respondents "Strongly Agreed" with this assertion. Six percent of respondents "Disagreed" that projects financed by both government and development partners have a higher likelihood of achieving sustainability, while three percent "Strongly Disagreed" with this assertion. One of the interviewed managers corroborated this by stating: "One of the government's primary principles for providing funding is to assess whether the project is founded on a robust sustainability plan." Incorporating sustainability concepts into their current projects can effectively guarantee the project's long-term effects. The results align with those obtained by Naku et al. (2021), indicating that successful initiatives require donors, as most funders prioritize the sustainability component and typically finance projects with a clearly articulated sustainability plan.

4.2.9 Projects Financed by Development Partners without Government Contributions Seem to have a Greater Likelihood of Achieving Sustainability

The researcher found that 48 percent of respondents were "Neutral" about the assertion that projects funded by development partners without government involvement are more likely to achieve sustainability. Approximately 29 respondents "Agreed" that projects funded solely by development partners, without government contributions, are more likely to achieve sustainability, while 14 percent of respondents "Strongly Agreed" with this assertion. Five percent of

respondents "Disagreed" that projects financed by development partners without government contributions are more likely to achieve sustainability, while four percent "Strongly Disagreed," as illustrated in Table 3. These findings are being corroborated. Longo et al. (2025) established a positive correlation between financial assistance and project sustainability, indicating that projects financed by external authorities enable organizations to exert greater control compared to those under government oversight.

4.2.10 The Selection of an Appropriate Project Financing Modality Tends to enhance Project Sustainability

The findings from Table 3 indicate that 56 percent of respondents were "Neutral" on the assertion that the selection of an appropriate modality for project financing contributes to project sustainability. Approximately 29 respondents "Agreed" that the selection of an appropriate modality for project financing contributes to project sustainability, while 10 percent of respondents "Strongly Agreed" with this assertion. Four percent of respondents "Disagreed" that the selection of an appropriate modality of project financing contributes to project sustainability, while one percent "Strongly Disagreed" with this assertion.

4.2.11 Multi-Stakeholder Financing of the Project Tends to Enhance its Contribution

The findings presented in Table 3 indicate that 62 percent of respondents had a "Neutral" stance about the contribution of multi-stakeholder financing to project sustainability. Nineteen respondents "Agreed" that multi-stakeholder financing of the project contributes to project sustainability, while ten percent of respondents "Strongly Agreed" with this assertion. Seven percent of respondents "Disagreed" that multi-stakeholder financing of the project contributes to project sustainability, while two percent "Strongly Disagreed" with this assertion. These findings appear to align with those of Kayijuka (2021), who determined that projects sponsored by various authorities can be sustainable within the community, contingent upon the diverse conditions governing their establishment.

4.2.12 Impact of Monitoring and Evaluation on Enhancing Project Sustainability

The last objective of the study was respondents evaluating the efficiency of monitoring and evaluation in enhancing project sustainability. Participants in this study were requested to evaluate these factors by selecting one option on a Likert scale ranging from strongly disagree to strongly agree. The findings were displayed in Table 4.

Table 4

Effectiveness of Monitoring and Evaluation on Promoting Project Sustainability

Response	SA		A		N		D		SD	
Factors	F	%	F	%	F	%	F	%	F	%
The project monitoring and evaluation is an important tool that enhance higher probability of project sustainability	30	29	40	39	30	29	03	02	02	01
The organization that has M&E framework and well implemented has higher contributions toward creating project sustainability	25	24	45	42	30	29	04	04	01	01
The organization that has a clear mechanism of discussing reports related with M&E and use it in the process of making informed decision about the implementation of the project tend to have impact on project sustainability	30	29	50	48	20	19	03	02	02	02
The project that shares M&E feedback to stakeholders has greater chance to build project sustainability	29	28	50	47	23	23	02	01	01	01

4.2.13 The Project Monitoring and Evaluation is a Crucial Instrument that Increases the Likelihood of Project Sustainability

Table 4 indicates that 29 percent of respondents were "Neutral" regarding the assertion that project monitoring and evaluation is a crucial instrument that increases the likelihood of project sustainability. Approximately 39 percent of respondents "Agreed" that project monitoring and evaluation is a crucial instrument that increases the likelihood of project sustainability, while 29 percent "Strongly Agreed" on its significance in enhancing project sustainability. Two percent of respondents "Disagreed" that project monitoring and evaluation is a crucial tool that increases the likelihood of project sustainability, while one percent "Strongly Disagreed" with this assertion.

4.2.14 Organizations with a Well-Implemented M&E Framework Contribute more Significantly to Project Sustainability

The researcher found that 29 percent of respondents were "Neutral" about the assertion that organizations with a well-implemented M&E strategy contribute more significantly to project sustainability. Approximately 39 percent of respondents "Agreed" that organizations with a well-implemented M&E framework significantly contribute to project sustainability, while 29 percent "Strongly Agreed" with this assertion. Four percent of respondents "Disagreed" that an organization with a well-implemented M&E framework contributes significantly to project sustainability, while one percent "Strongly Disagreed," as illustrated in Table 4. One of the interviewed managers corroborated this by stating: "The utilization of a Monitoring and Evaluation framework, encompassing communication, data dissemination, and financial and reporting oversight, is crucial for ensuring project sustainability. These components facilitate the effective implementation of MoCLA projects."

4.2.15 Organizations having a Transparent Mechanism for Discussing Monitoring and Evaluation Reports and Utilizing them in Informed Decision-Making on Project Implementation Tend to enhance Project Sustainability

Table 4 reveals that 29 percent of respondents were "Neutral" regarding the organization's clear mechanism for discussing reports related to Monitoring and Evaluation (M&E) and its influence on informed decision-making in project implementation, which tends to affect project sustainability. Approximately 48 respondents "Agreed" that organizations with a transparent mechanism for discussing reports related to Monitoring and Evaluation (M&E) and utilizing them in informed decision-making regarding project implementation positively influence project sustainability. Meanwhile, 29 percent of respondents "Strongly Agreed" with this assertion. Two percent of the respondents "Disagreed" that organizations with a clear structure for addressing reports related to monitoring and evaluation (M&E) and utilizing them in decision-making processes about project implementation tend to influence project sustainability. Two percent of the respondents "Strongly Disagreed" that organizations with a clear structure for addressing reports related to Monitoring and Evaluation (M&E) and utilizing them in informed decision-making regarding project implementation tend to influence project sustainability.

4.2.16 The Project that Disseminates Monitoring and Evaluation Feedback to Stakeholders has a Higher Likelihood of Fostering Project Sustainability

The researcher found that 23 percent of the respondents were "Neutral" on the project's potential to enhance sustainability through sharing M&E comments with stakeholders. Approximately 47 respondents "Agreed" that the project disseminating M&E feedback to stakeholders is more likely to enhance project sustainability, while 28 percent of respondents "Strongly Agreed" with the same assertion. One percent of the respondents "Disagreed" that sharing M&E feedback with stakeholders enhances the likelihood of project sustainability, while one percent "Strongly Disagreed" with the same assertion, as illustrated in Table 4.

4.3 The Multiple Regression Model Analysis

The research largely examined elements that influence project sustainability, specifically stakeholder engagement, government funding, and monitoring and evaluation aspects. A multiple regression model was employed to investigate the relationships between these characteristics and project sustainability in order to attain the research purpose and objectives. The findings from the regression analysis are detailed in the subsequent sections.

Summary of the Multiple Regression Model: The model's summary elucidates the rationale for using the aforementioned variables in the multiple regression analysis to ascertain their relevance for the study's objectives. This section evaluates the relevance of the study's variables. This analysis often depends on R-squared statistics, F statistics, and p-values to ascertain the significance of the independent variables in elucidating project sustainability, the dependent variable. This comprehensive analysis is displayed in Table 5.

Table 5

Model Summary Results

Model	R	R-Square	Adjusted R-Square	Std. Error of the Estimate	F	Sig.
1	0.874	0.701	0.719	1.6751	19.763	0.000

a. Predictors: (constant), X_{SEC} , X_{GFC} , X_{MandE}

Table 5 indicates that the model is significant at the 0.05 significance level, as the p-value is below 0.05. The R value is 0.874 (87.4%), affirming the significance of the independent variables in the multiple regression model of this study. The findings demonstrate that the predictors together account for 70.1% of the variance in the dependent variable (Y_PS), as indicated by an R-Square value of 0.701. The Standard Error of the Estimate is 1.6751, and the F-Statistic is

19.763, both significant at a p-value of 0.000. These results confirm that the three predictor variables are suitable for inclusion in the multiple regression model outlined in the preceding chapter.

4.4 The Examination of Variance

ANOVA, or Analysis of Variance, is frequently employed to evaluate the model's fit to the data by examining F statistics and establishing significance thresholds. The findings of the ANOVA analysis are displayed in Table 6.

Table 6
ANOVA^a Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.851	3	3.731	8.186	.000 ^b
	Residual	100.740	221	.456		
	Total	130.591	227			

Table 6 presents the results of the regression analysis examining the relationship between the dependent variable and the independent factors in this research project. The calculated F statistic is 8.186, with a significance level of less than 0.000, which is below the conventional threshold of 0.05. It may be concluded that the model is well-suited for the regression analysis conducted in this research project.

4.5 Results of the Multiple Regression Model

The researcher employed a regression model to analyze the influence of stakeholder engagement, government funding, and monitoring and evaluation mechanisms on project sustainability in Tanzania, assessing the effects of independent variables on the dependent variable in accordance with the study's objectives and research questions previously delineated. Table 7 displays the results and findings of the regression coefficients

Table 7
Coefficient Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
α	1.480	.604		2.452	.015
X_{SEC}	.169	.076	.146	2.226	.027
X_{GFC}	.282	.112	.166	2.510	.032
X_{MandE}	.466	.035	.340	2.545	.000

From Table 7 above, the estimated multiple regression model can be extracted using standardized coefficients as shown by equation 2.

$$Y_{PS} = 1.480 + 0.146X_{SEC} + 0.166X_{GFC} + 0.340X_{MandE} \dots\dots\dots (2)$$

Table 7 and Equation 2 are utilized to address the research questions in accordance with the precise objectives outlined.

4.5.1 The Impact of Stakeholder Engagement on Project Sustainability

The primary aim of this study was to assess the impact of stakeholder participation on project sustainability. The findings of the multiple regression model displayed in Table 7 and equation (2) demonstrate that stakeholder involvement (X_{SEC}) significantly and positively influences project sustainability (Y_{PS}), as evidenced by a significance value of 0.027, which is below the 0.05 threshold for significance. This indicates that, with other variables (X_{GFC} , $X_{(M\&E)}$) held constant, a 1-unit increase in stakeholder engagement contribution results in a 0.146-unit increase in project sustainability and vice versa.

4.5.2 The Impact of Government Funding on Project Sustainability

The secondary purpose was to evaluate the impact of governmental support on project sustainability. Table 7 presents results indicating a correlation between government funding (X_{GFC}) and project sustainability, with significance at the 5 percent level, evidenced by a p-value of 0.032, which is below the 0.05 criterion. This indicates that an increase in government financing contribution by one unit, while holding all other factors equal, would enhance project sustainability by 0.166 units, and conversely.

4.5.3 The Efficacy of Monitoring and Evaluation in Project Sustainability

The final purpose of this research was to assess the efficacy of the monitoring and evaluation process in guaranteeing project sustainability. The results in Table 7 indicate that the significance level for monitoring and evaluation ($X_{(M\&E)}$) is below the 0.05 threshold, implying the efficacy of the M&E system in ensuring project

sustainability. A positive standardized correlation related to M&E and project sustainability has also been identified. This finding indicates that an increase of one unit in M&E practices, assuming all other parameters remain constant, correlates with a 0.340 unit increase in project sustainability, and vice versa. Consequently, stakeholder participation, government funding, and monitoring and evaluation were favorably and statistically significant in influencing project sustainability throughout the study period.

This study provides a significant advantage by conserving time and facilitating straightforward interpretation across many domains of project sustainability (Tumpale, 2025). Research conducted in Ethiopia by Enjei and Valery (2025) revealed that project sustainability was poorly understood by practitioners, and many governments and policymakers were tardy in addressing the sustainability of initiatives, particularly those initiated at the ministerial level. A significant threat to the project's sustainability was the ambiguity of its determinants. Governments predominantly regard M&E as the primary determining factor (Dhillon & Moncur, 2023).

Ndunguru et al. (2020) discovered that stakeholder engagement adversely impacted project sustainability due to the difficulties associated with involving individuals/stakeholders during the planning and execution of construction projects in Greece. This contrasts with the findings of this study, which identify a beneficial contribution of stakeholder participation to project sustainability in Tanzania.

The impact of government funding on project sustainability was shown to be both favorable and statistically significant. This finding is identical to that discovered by Tumpale (2025). Moreover, monitoring and evaluation were determined to enhance project sustainability. Nonetheless, inadequate literacy in monitoring and evaluation hinders the advancement of project sustainability (Naveenkumar et al., 2025; Njoroge & Yaro, 2023).

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

Stakeholder engagement, government funding, and monitoring and evaluation are critical determinants of project sustainability. The success of any project hinges on specific determinants that ensure its sustainability. Stakeholder participation at each project stage fosters diverse perspectives and facilitates collective agreement on project management and long-term sustainability goals for the community. Additionally, government funding is vital for project sustainability, as funding is contingent upon the assurance of the project's enduring viability. Consequently, any project without sustainability will not receive funding, rendering its successful completion exceedingly challenging. Monitoring and evaluation are crucial for any project to assess its progress and attain long-term sustainability goals for the community.

5.2 Recommendation

Given that the community is the principal beneficiary of the donor-funded project, their involvement from the first stages of project planning is essential. Projects initiated without community involvement necessitate the meticulous formulation of intentional sustainability strategies as a corrective action to preserve project advantages. Consequently, to ensure project sustainability, it is necessary to incorporate communities from the initial stages of project identification to foster a sense of ownership. Effective governance necessitates the eradication of all sorts of meddling by senior political leaders in district or village development programs, thereby establishing a clear demarcation between politicians and civil officials. Public leaders are advised to adhere to existing policies and rules on community accountability, disregarding any interference from higher-level political figures. The government must ensure that it funds only those projects that have sustainability objectives for the community. The project must be monitored from the first stage of execution to its final stage and assessed for its achievement of sustainability goals. This study has been conducted to identify the factors influencing the sustainability of public projects. Various studies should be conducted across different organizations to ascertain whether identical outcomes can be achieved, hence facilitating the generalization of the results.

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Screen addiction, the silent epidemic: Examining the effects of mobile phone use on undergraduate students' academic performance - Insights from Valley View University (VVU), Oyibi Campus, Accra, Ghana

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ABSTRACT

The main objective of the study was to examine the effects of mobile phone use on the academic performance of undergraduate students at VVU, Oyibi Campus, Accra, Ghana. The study was underpinned by Uses and Gratifications Theory (U&GT) and the Technology Acceptance Model (TAM). The study addresses four key questions on mobile phone usage among undergraduate students: (i) the extent of mobile phone addiction, (ii) the average time students spend using mobile phones, (iii) the reasons behind mobile phone usage, and (iv) the effects of mobile phone use on students' academic performance. The undergraduate students' population was 2,613, and the sample size was 384. The study employed a descriptive survey approach. A well-structured questionnaire was the only instrument used for data collection. Cochran's method was applied to determine the suitable sample size for the study. In this study, the researchers analysed the data using IBM SPSS, version 27 (Statistical Package for Social Sciences). The findings indicated that students spent 1 to 3 hours every day using their mobile phones. The findings revealed that mobile phone addiction among students adversely affects their academic performance. The study found again that students use their phones to visit various social media network sites for entertainment, leisure, sharing images, and communicating with their peers. The implication is that in the absence of adequate supervision and control measures, mobile phone usage may persist in detrimentally affecting students' educational achievements. The researchers recommended that the university's management prioritise mobile phone usage for educational purposes. In conclusion, the findings will contribute to the ongoing discussion about the impact of mobile technology on student performance.

Keywords: Academic Performance, Mobile Phone Usage, Students, Valley View University

I. INTRODUCTION

Technologies play a pivotal role in all aspects of human activities in today's rapidly evolving world. In the twenty-first century, technology has revolutionised the way people live and communicate (Hashemi et al., 2022). In recent decades, the various types of mobile phones have impacted people's lives globally (Arefin et al., 2017; Hashemi, 2021). This development of technology has given birth to the proliferation of various communication devices, including mobile phones. In this digital age, mobile phones have evolved from mere communication devices into multifunctional tools that play a significant role in student's academic and social lives. With their portability, internet access, and a wide range of educational applications, mobile phones have become almost indispensable among university students. While these devices offer considerable advantages in terms of information access, learning flexibility, and real-time communication, their widespread use has also raised concerns regarding their impact on academic performance. Mobile phone devices enable users to initiate and receive voice calls and transmit text messages. Users of some mobile phones use the internet and various social media platforms to access information. Some mobile phones have specialised applications designed for specific activities. Among the functions are searching for information, facilitating communication, providing entertainment, and conducting online transactions (Adams & Paul, 2017).

The growing adoption of these devices is associated with multiple factors, including their mobility, economic accessibility, and simplicity of use relative to other technological offerings. Mobile phones have become essential tools for academic and recreational pursuits. They offer access to educational resources via numerous applications, videos, and digital content. However, the escalating dependence on these devices has raised alarms about their possible repercussions on students' academic performance and overall educational outcomes. This phenomenon is particularly noticeable among students who use these devices for educational purposes and leisure activities, including gaming and social networking. Although mobile phones provide significant educational advantages, excessive use raises concerns regarding distractions, diminished concentration, and a decline in academic achievement.

Bouazza et al. (2023), Baert et al. (2020), O'Connor and Andrews (2018), and Wilmer et al. (2017) conducted studies on mobile phone usage elsewhere. When these devices are used appropriately, they can support learning through online research or use to search for academic information. The dual facets of mobile phone use underscore the importance of gaining a better understanding of how students interact with these devices and the level to which their academic performance is affected.

1.1 Statement of the Problem

Mobile phones have become integral components of daily life, serving a wide array of functions. For university students in Ghanaian higher education institutions, including VVU, these devices are indispensable for both academic endeavours and social interactions. They facilitate immediate access to information, educational resources, and communication tools. Nevertheless, the widespread and often unregulated use of these devices has generated apprehension regarding distractions, poor study habits, and a decline in academic performance. While mobile phones possess the capacity to enhance learning, excessive engagement with non-academic activities such as social media and entertainment can impede students' concentration, time management, and overall academic outcomes. Although there is an expanding body of research concerning mobile device utilisation among university students, there remains a lack of empirical studies examining the impact of phone use within the context of VVU.

Prior studies have indicated a higher prevalence of mobile phone dependency among university students (Ahmed et al., 2020; Bağcı & Pekşen, 2018; Alhassan et al., 2018; Luk et al., 2018); however, these studies did not cover VVU. Consequently, the insights derived from this research will be invaluable for various stakeholders, including parents, university administrators, policymakers, and the Ministry of Higher Education, in developing strategies to mitigate excessive mobile phone usage among students and foster their academic achievement.

In Ghana, Darko-Adjei (2019) and Quist and Quarshie (2016) conducted similar studies but did not extend their scope to VVU, a premier private university in Ghana. These studies left a gap in understanding the usage of mobile phones among students at private universities. The present study explores mobile phone addiction among undergraduates at Valley View University, Oyibi Campus, Accra. The study seeks to contribute to existing literature and serves as a reference point for future studies.

1.2 Research Objectives

- i. To find out the extent of mobile phone addiction among undergraduate students at VVU
- ii. To determine daily duration of mobile phone use among students at VVU
- iii. To examine the reasons for mobile phone usage among undergraduate students at VVU
- iv. To find out the effects of mobile phone use on the academic performance of students at VVU

II. LITERATURE REVIEW

2.1 Theoretical Review

This study adopts two theoretical frameworks. They are Uses and Gratifications Theory (U&GT), propounded by Blumler and Katz (1974) and the Technology Acceptance Model (TAM) by Venkatesh and Davis (2000). According to the Uses and Gratifications Theory, individuals are active consumers who search for media that meet their needs. These needs can include cognitive desires for information and knowledge, as well as affective needs for pleasure, entertainment, and relaxation. However, when the search for gratification becomes too excessive, it can lead to addiction as well as negative consequences. On the other hand, the Technology Acceptance Model explains why people stick with their phones, focusing on how useful they find them, how user-friendly they are, and the effect of social influences. This model aims to enhance our understanding of user behaviour. It delves into how technology devices work and the issue of smartphone addiction. This addiction is generally considered a by-product of a society's historical narrative, shaped by socio-cultural influences. In the end, a comprehensive viewpoint suggests that smartphone addiction stems from a blend of personal, cultural, technological, environmental, and emotional factors. Together, these theories provide a framework for understanding mobile addiction and its consequences for students' academic performance.

2.2 Empirical Review

Several empirical studies have explored the factors that affect how tertiary students utilise mobile phone technologies in universities worldwide. While these studies provide important insights, the variations in their findings suggest that more research is needed. Therefore, this present study was to investigate the effects of mobile phone usage on the academic performance of undergraduate students.

2.2.1 Mobile Phone Addiction among Undergraduate Students

The prevalence of mobile phone addiction is a widespread behavioural canker among the young generation, most especially undergraduate students. The addiction is influenced by the affordability and accessibility of smartphones, including the rapid development of the internet. According to Ifeanyi and Chukwuere (2018), smartphone addiction can be a main source of distraction, ultimately impacting students' learning abilities. On the other hand, Ma et al. (2020) found that phone addiction impacts students' learning processes. They also revealed that mobile phones had a positive effect on undergraduate students' learning experiences. Joy and Mathew (2016) identified a high level of mobile phone addiction among college students. Mainga (2016) identified a high level of mobile phone addiction among Kashmiri male students, while it was moderate among Kashmiri female students. Nair (2019) researched smartphone addiction, revealing that 63% of participants were addicted to their mobile devices. Desai (2020) discovered a strong correlation between smartphone addiction and anxiety and depression, alongside sleep disturbances, social isolation, and fear of missing out. One of the most immediate effects of excessive mobile phone use is distraction. Students who frequently check social media, play games or engage in non-academic chats during lectures and study hours may struggle to concentrate in their learning. This divided attention reduces understanding, retention of information, and ultimately lowers academic performance. Multitasking between academic work and mobile phone use can also lead to cognitive overload, making it difficult for students to perform academic tasks effectively and efficiently.

Prolonged mobile phone use, especially at night, is associated with poor sleep. Studies have often categorised students into low, moderate, and high levels of addiction, indicating that moderate to high addiction levels are common among university populations. In Pakistan, Raza et al. (2020) found a connection between smartphone addiction and difficulties in managing time and maintaining focus. Throughout Asia, the prevalence of problematic smartphone use among undergraduates' ranges from 30% to 65%, often associated with academic pressure, poor sleep quality, and emotional instability (Demirci et al., 2015; Yang et al., 2019). Anjana et al. (2020), Meshak et al. (2020), and Prasad et al. (2022) conducted studies on the prevalence of problematic smartphone use and addiction among undergraduate students in the Global South. The findings indicate that the rates of moderate to severe addiction range between 45.8% and 77%. These results affirm how students use their time on these mobile technologies at the expense of their studies. Students frequently use their smartphones for academic purposes (Arumugam et al., 2019). Most students stay up late texting, watching videos, or browsing various social media platforms, contributing to sleep deprivation. Inadequate sleep negatively impacts memory, alertness, and academic output the following day.

This distraction subsequently extends to their learning performance beyond the classroom. The nature of university environment requires high level of concentration, and time management. Mobile phones, when misused, can interrupt this balance, leading to challenges such as sleep disruption, reduced classroom participation, and lessen academic motivation. The rise of mobile technology has made it easier for people to access information, stay connected, and enjoy various conveniences, all of which have contributed to the growing use of smartphones (Handa & Ahuja, 2020). Recent studies have highlighted a concerning trend of excessive smartphone use among students in South Africa, particularly in relation to social media and gaming (Olasina & Kheswa, 2021). Similar research in Nigeria showed that while smartphones can aid in academic tasks, overindulgence in non-academic activities can lead to addiction and hinder academic success (Ndubuaku et al., 2020).

Similarly, when used appropriately, mobile phones can support self-placed learning, provide immediate access to academic materials, and enhance communication between lecturers and students. As students become more dependent on mobile phones, they may experience symptoms of behavioural addiction. These may include compulsive checking of mobile phones and irritability when separated from mobile phones. This dependency can affect their ability to focus, self-regulated, and function independently in social and academic settings.

Furthermore, Samaha and Hawi (2016) contended that high levels of mobile phone usage can adversely affect academic performance. A study conducted in Egypt by Eldesokey et al. (2021) identified a notable prevalence of smartphone addiction among medical students, with a reported rate of 53.6%. Additionally, Mohamed and Moustafa (2021) reported a higher prevalence, with their findings indicating a rate of 74.7%. Naveenta et al. (2016), Rupani et al. (2016), and Bouazza et al. (2023) reported in their studies that mobile devices are prone to sleep deprivation and increased stress levels. They stressed further that mobile phones adversely affect cognitive functions and learning capabilities. The over-dependence on mobile phone usage may result in distractions during lectures. It may also divert focus and information retention. These practices ultimately affect students' academic performance in general. The excessive use of mobile phones may linked to increased stress, anxiety, and depression among students. Constant

notifications, the pressure to respond to messages, and exposure to unrealistic images on social media can contribute to feelings of inadequacy, low self-esteem, and emotional exhaustion. The fear of being without a mobile phone is also becoming more common among students these days. The figure shows a trend towards increased dependence on smartphones in daily life. Davey and Davey (2014) conducted a study employing a mixed-methods approach. The study discovered that the prevalence of smartphone use among Indian students was high, resulting in addiction due to its misuse. While mobile phones are invaluable tools for communication and learning, their excessive use poses a serious risk to students' academic success, mental health, social interactions, and physical well-being. Parents, policymakers, educators and students themselves need to foster healthy digital habits and establish boundaries that ensure mobile phones serve as learning tools rather than distractions from academic and personal health.

2.2.3 Daily duration of mobile phone use among students

The amount of time spent on mobile phones varies greatly. It influences academic obligations, social interactions, and personal routines. The time students spend on mobile phones has been a key factor in predicting addiction and academic challenges. Many undergraduate students are spending several hours each day on their mobile devices. These students can stay beyond the conventional hours browsing. Prolonged use can result in distractions, poor performance, and possible health issues, including eye strain and disruptions in sleep patterns. When learners prioritise mobile phone activities, it also leads to poor time management, ultimately affecting academic activities. Multitasking between educational activities and mobile phone use interferes with the ability to focus, leading to inadequate attention to learning activities.

A study in Ethiopia by Mengistu et al. (2023) revealed that students utilising phones for over four hours daily were more prone to academic deterioration, sleep difficulties, and emotional dysregulation. At the same time, mobile phones can be good educational tools. However, excessive and unregulated use tends to contribute to poor academic performance of students. Understanding mobile phone addiction in undergraduate students really hinges on examining their average usage time. Wilmer et al. (2017) discovered that students with smartphones typically engaged with their devices for about 4 to 10 hours each day. The average duration of mobile phone usage among students has become a crucial metric for understanding smartphone dependency and its effects on students' performance. Moderate mobile phone usage can facilitate learning by providing access to educational resources and the exchange of ideas; however, excessive use heightens the risk of distraction and undesirable behaviour. Most of them use the devices during classes. The average time students spend on their phones is not over-exaggeration but a reality of addictive behaviours, psychological effects, and academic disengagement in university environments. Studies have continuously indicated that students who allocate excessive time to their mobile phones are more prone to addictive behaviours, decreased academic concentration, and poor performance. Thus, average usage duration is a critical indicator for evaluating the impact of mobile phone usage on students' achievement and psychological well-being.

Quist and Quarshie (2016) examined the duration of mobile phone usage among students in various settings. Their findings revealed that 32.0% of students reported spending 7 hours or more on their mobile devices at home, 9.9% indicated similar usage at school, and only 3.5% reported spending 7 hours or more at their workplace. Ataş and Çelik (2019) report that university students typically dedicate an average of 5 hours each day to mobile phone usage, with 4 of those hours spent online. Dergisi (2017), a study conducted in Turkey, indicated that students spent an average of 3.15 hours a day on their smartphones. The main activities identified were listening to music, texting, participating in social networks, watching movies, and chatting. In contrast, only a minority of students employed their smartphones for academic activities such as taking notes, retrieving scientific information, shopping, and sending emails.

Research indicates that individuals who use cell phones for prolonged periods, generally exceeding four to five hours daily, are more likely to exhibit symptoms including compulsive checking, withdrawal, and diminished self-regulation (Pirwani et al., 2025; Mitchell & Hussain, 2018). The average time students spend on their phones is not over-exaggeration but a reality of addictive behaviours, psychological effects, and academic disengagement in university environments. Fook et al. (2021) conducted a research study examining smartphone usage patterns among university students. The findings indicated that a significant portion of participants reported daily smartphone usage ranging from 3 to 6 hours (45.5%, n=25), with a smaller group using their devices for 7 to 10 hours (27.3%, n=15). Notably, three individuals reported spending over 20 hours (5.5%, n=3) on their smartphones every day. Additionally, the data highlighted that the most common duration of smartphone use per session was between 30 to 44 minutes (20.0%, n=11), followed by 15 to 19 minutes (14.5%, n=8) and at least 10 to 14 minutes (12.7%, n=7). In terms of weekly usage, the majority of students reported exceeding 40 hours (20%, n=11), with other notable time brackets including 26 to 30 hours (14.5%, n=8), 16 to 20 hours (10.9%, n=6), 11 to 15 hours (10.9%, n=6), and the least reported category being 31 to 35 hours (10.9%, n=6). The study further revealed that most respondents used smartphones primarily for educational purposes (43.6%, n=24), while 16 participants (29.1%) indicated that they dedicated half of their smartphone time to searching for academic information. The average duration of cell phone usage among students significantly influences their academic experiences and behavioural results. Students should be motivated to use mobile devices intentionally

and with awareness to recognise the educational benefits of mobile phones and stay away from their potential detrimental impacts.

2.2.4 Reasons for Mobile Phone Usage among Undergraduate Students

The role of mobile phone usage in students' lives has become increasingly significant. Mobile phones serve diverse functions that go beyond communication. Students leverage these devices for academic purposes, such as researching information, engaging in online educational platforms, and obtaining learning resources. The expansion of blended and fully online courses has made smartphones vital tools for communication between students and faculty.

The reliance on emails, forums, and Zoom meetings contributes to extended phone usage during and outside of class hours. Mobile phones serve as an all-in-one solution — including a calculator, camera, planner, alarm, dictionary, and more. Their portability renders them more appealing than other devices, such as laptops, for swift tasks.

Most students use mobile phones as learning tools. Students use these devices to access e-books, educational apps, lecture recordings, online classes, and online databases to support academic collaboration and independent learning. A study conducted by Ahmad (2020) found that students generally have a positive perception of using cell phones as a learning tool and incorporating them into educational activities. They appreciate how these devices enhance social connections and collaboration, allowing for more flexible and personalised learning experiences.

The mobile apps enable users to perform a broad array of tasks, including navigating and connecting on social media (Gritti et al., 2023) as well as shopping online (Srivastava & Thaichon, 2023). The convenience of accessing academic materials anytime and anywhere motivates frequent use. Maintaining connections with peers, family, and social networks serves as a significant influencer. University students frequently use social media platforms such as WhatsApp, Instagram, Snapchat, and Facebook to keep relationships, engage in academic group discussions, and participate in campus activities. The quest for social validation and the impact of peer influence can motivate the usage of mobile phones. Atas and Çelik (2019) found that university students predominantly utilised smartphones for texting, making phone calls, browsing social media, and performing internet searches, with shopping being the least frequent activity. University students initially adopted smartphones mainly for their studies, but research suggests that they gradually begin to explore non-academic activities due to the versatility of these devices (Abdulmalik & Anka, 2024; Amez & Baert, 2020). Students often begin their academic tasks but can easily shift to social media, gaming, and entertainment apps that are all available on the same device (Gökçearsan et al., 2016).

Students use mobile phones for social media interactions. These include listening to music, receiving and sharing videos, conversation recording, video calling, internet access, and music sharing via Bluetooth (Edjah & Nkrumah, 2023). Siew et al. (2017) discovered that students used mobile phones for various academic purposes, including consulting reference materials, resolving mathematical problems, downloading lecture slides, and engaging with online quizzes and other activities that enhance their educational experience. Students use mobile phones for various non-academic pursuits, including social media participation, video streaming, and online shopping.

The rationale behind mobile phone usage is diverse among students. Generally, their usage is motivated by convenience, ease of access, and individual preferences. The fear of missing out on important news, events, or groups discussions compels students to be glued to their mobile phones. As time progresses, what initially starts as purposeful engagement can transform into a routine. Students often find themselves unlocking their phones without any particular intention, influenced by habitual actions or dependence on their devices, which can lead to compulsive usage.

Quist and Quarshie (2016) conducted research examining the utilisation of mobile phones by undergraduate students in Ghana. Their findings indicated that 20.0% of respondents consistently listened to music on their devices, while 7.9% engaged in gaming activities. Additionally, 2.0% reported watching movies, 46.5% used social networking platforms, and 12.9% conducted work-related research. Akaglo and Nimako-Kodua (2019) conducted a study examining the impact of mobile phone usage among second-cycle students in Ghana. Their findings indicated that smartphones significantly enhance educational activities. Mobile devices enable students to access current information, prepare for lessons, and access resources like books, music, social media, games, and different applications. Mobile phones facilitate independent research and preparation for upcoming lesson activities (Chan et al., 2021).

Punir (2021) asserts that smartphones have transformed the field of communication. As devices become cheaper and internet access improves, students are increasingly utilising phones for their educational requirements. They use them to access digital learning platforms, maintain communication with peers and instructors, and manage their course materials (Dampson et al., 2020; Dzontoh, 2024; Frimpong et al., 2016). Mobile technologies enhance immediate interactions with professors/lecturers and peers through various platforms such as email, messaging applications, and video conferencing. Mobile phones promote connectivity and enhance productive academic discussions and tailored learning experiences. The literature indicates that mobile phone usage among undergraduate students is motivated by both academic and non-academic factors. These are social media engagement, instant messaging, and entertainment, which constitute the bulk of usage time. Mainga (2016) determined that 42% of undergraduate students at Laikipia

University used their Facebook accounts every day, while about 34% accessed it at least twice a week. The outcome signifies that a substantial percentage of university students frequently engage with social media platforms.

2.2.5 Effects of Mobile Phone Use On Students' Academic Performance

The rising trend of mobile phone usage among students has created substantial debate about its influence on academic success. Mobile phones have numerous benefits, including access to educational materials and communication tools. Nonetheless, their excessive and uncontrolled usage can adversely affect students' academic results. The proliferation of mobile phones enables online learning, academic collaboration, and peer-teacher connections.

According to Tachie-Menson et al. (2025), university students who are more adept with technology and have advanced academic levels are at a greater risk of developing phone habits and addiction, as well as the related consequences. However, overuse raises concerns about potential effects on academic achievements, social interactions, and overall well-being. Ahmed et al. (2020) demonstrated that smartphones significantly influence students' academic performance. Mobile phones enhance communication and improve educational outcomes, but excessive use can lead to distractions and decreased focus, highlighting their importance in today's technology-driven society. The pervasive use and dependency on these devices can lead to detrimental physical, psychological, and social consequences for individuals (Naveenta et al., 2016; Okasha et al., 2021). While smartphones provide various advantages, including access to information and educational resources, their overuse has generated apprehensions regarding their effects on mental health (Achangwa et al., 2023), ergonomics (Ayhuallem et al., 2021; Xie et al., 2017), and academic distraction (Ifeanyi & Chukwuere, 2018; Mendoza et al., 2018). Research conducted with undergraduate medical students showed that individuals with addiction issues were significantly more likely to encounter academic struggles. This finding emphasises how smartphone addiction can negatively affect academic success (Zeerak et al., 2024).

One of the most notable impacts of mobile phone usage is the distraction it generates during lectures, study periods, or group discussions. Students often receive notifications from social media, text messages, and phone calls, which disrupt their concentration. This ongoing interruption can result in diminished material retention and lower levels of engagement in the classroom. Another significant body of research has demonstrated a relationship between excessive mobile phone use and reduced academic success. Lengthy screen time often interferes with the time designated for studying, completing coursework, or reviewing for tests. As a result, this can cause missed deadlines, incomplete assignments, and inadequate performance in examinations. Lepp et al. (2014) discovered a correlation between high levels of smartphone usage and decreased GPA scores, underscoring the negative impact of such technology on students' academic performance. Oluwafemi et al. (2021) assert that overusing phones negatively impacts the cognitive skills and abilities crucial for students' success and educational attainment.

Chathurangaa and Jaysundarab (2021) examined the impact of smartphone usage on academic performance among undergraduates. Their findings indicated that students frequently use smartphones to communicate with peers and instructors. They further emphasised that the strategic use of smartphones has a beneficial effect on students' performances. The persistent engagement with mobile phones, especially for purposes unrelated to academics, can detract from students' focus. Sheng (2025) found that overuse of smartphones can lead to physical strain, like neck tilting and wrist pain, as well as cognitive issues such as poorer memory retention and concentration. It can also increase feelings of anxiety and stress. Similarly, a study from Pakistan showed that excessive smartphone use can disrupt sleep patterns, ultimately affecting academic performance and overall well-being (Raza et al., 2020).

Balancing academic tasks with phone interactions divides attention. Additionally, mobile phones have simplified the means for students to partake in dishonest academic practices, including cheating on examinations or copying work. Dependence on mobile phones may adversely affect interpersonal communication skills. Students may opt for virtual interactions over in-person academic discussions or peer study groups, which can constrain collaborative learning opportunities and hinder the advancement of critical thinking skills.

On a positive note, mobile phones can facilitate academic success when used with good intentions. The availability of educational applications, online tutorials, academic websites, and the ability to communicate with instructors and fellow students enriches the learning experience, particularly in blended or remote educational settings.

In a similar study, Abdulmalik and Anka (2024) revealed that of 396 respondents, 209 (52.78%) strongly agreed that smartphones help them to access materials to complement their lecture notes. Illustrations that smartphones are considered valuable tools for improving educational resources. Previous studies indicate that mobile phone usage can enhance academic performance, such as for accessing educational resources or engaging in scholarly conversations. The above suggests that the academic impact of mobile phone usage depends on patterns, intensity, and purpose of use. Knowledge of mobile phone usage behaviours may help educators and educational institutions encourage the responsible use of mobile devices. These practices could lead to more effective learning benefits for students. The influence of mobile phone use on students' academic outcomes is both complex and varied. While these devices can serve as effective educational devices, their improper use or overuse may obstruct academic progress. Thus, promoting awareness, defining usage parameters, and effectively integrating phones into the educational process can enable

students to harmonise productivity with connectivity. Studies have shown that implementing strategies to curb smartphone addiction and encourage healthier usage habits among university students can help reduce the rate of mobile phone use (Meshak et al., 2020; Prasad et al., 2022).

III. METHODOLOGY

3.1 Research Design

This part of the study presents methodology used in examining the effects of mobile phone use on students' academic performance. The study was carried out at Valley View University (VUU), Oyibi Campus, Accra. The researchers selected the University based on its diverse range of academic programmes and the fast-growing student population. The researchers employed a quantitative design, utilising a survey questionnaire to examine the effects of mobile phone use on students' academic performance at Valley View University (VUU), Oyibi Campus, Accra. The study also used descriptive statistics to determine the frequency, percentage, mean, and standard deviation of the data.

3.2 Target Population

The research encompassed the Faculty of Arts and Social Sciences, the Faculty of Science, the School of Business, the School of Education, and the School of Nursing & Midwifery. The study focused on only undergraduates. At the time of this research, the number of undergraduate students was 2,613. Table 1 below presents a distribution of students per faculty and school.

Table 1

Student Population Breakdown by Faculty & School

Faculty & School	Population
Faculty of Arts & Social Sciences	327
Faculty of Science	448
School of Business	382
School of Education	645
School of Nursing & Midwifery	811
Grand Total	2,613

Source: Office of the Registrar, 2024/2025 VUU

3.3 Sampling and Sample Size

The study adopted Cochran's (1977) proportionate sample size to determine the sample size for the study. Thus;

$$n = \frac{Z^2 \times P \times (1-p)}{E^2}$$

Where:

Z = 1.96 (Z- value for 95% confidence level)

P = 0.5 (estimated population proportion)

E = 0.05 (margin of error)

The total population N= **2,613**

Step 1;

$$n = \frac{(1.96)^2 \times 0.5 \times (1-0.5)}{(0.05)^2}$$

$$n = 3.8416 \times 0.25 / 0.0025$$

$$n = 0.9604 / 0.0025 = 384.16$$

Thus, the total sample size is 384

Sample Size for each faculty and school:

$$= \frac{(\text{faculty or school population}) \times \text{Total Sample Size}}{\text{Total Population}}$$

Hence;

Total Population (N) = 2,613

Total Sample Size (n) = 384

For each of the faculty and school;

$$1. \text{ Faculty of Arts \& Social Sciences } 327 = (327 / 2613) = 0.1251 \times 384 = 48$$

2. Faculty of Science $448 = (448/2613) = 0.1715 \times 384 = 66$
3. School of Business $382 = (382/2613) = 0.1462 \times 384 = 56$
4. School of Education $645 = (645/2613) = 0.2469 \times 384 = 95$
5. School of Nursing & Midwifery $811(811/2613) = 0.3104 \times 384 = 119$

Step 2: for proportionate sample size, the researcher divided the population of each faculty or school by the total population and later multiplied the results by the sample size of 384 to arrive at a sample size for each faculty or school.

Table 2

Population of Students from Each Department, Faculty and School

Faculty & School	Population	Proportion (N)	Sample Size
Faculty of Arts & Social Sciences	327	$327/2613 = 0.1251$	$0.1251 \times 384 = 48$
Faculty of Science	448	$448/2613 = 0.1715$	$0.1715 \times 384 = 66$
School of Business	382	$382/2613 = 0.1462$	$0.1462 \times 384 = 56$
School of Education	645	$(645/2613) = 0.2469$	$0.2469 \times 384 = 95$
School of Nursing & Midwifery	811	$811(811/2613) = 0.3104$	$0.3104 \times 384 = 119$
Grand Total	2,613		384

Source: Field data, 2025

Table 2 of this study presents the population of students belonging to each department, faculty, and school.

Table 3

Sample Size for Each Faculty

Faculty & School	Sample Size
Faculty of Arts & Social Sciences	48
Faculty of Science	66
School of Business	56
School of Education	95
School of Nursing & Midwifery	119
Total	384

Source: Field data, 2025

From Table 3 above, the sub-section shows the total sample size used by the researchers in this study.

3.4 Data Collection Method

The process of data collection commenced with the acquisition of requisite permissions from appropriate authorities. Approval was requested from the university registrar. After receiving this authorisation, the researchers obtained informed consent from the students to abide by ethical standards before the copies of the questionnaire were administered for data gathering. The copies of the questionnaire were administered to 384 undergraduates using Google Forms. The data collection phase took place from December 2024 to March 2025.

3.5 Data Analysis

In this section, the researchers applied the quantitative technique to analyse the data. This provides a comprehensive understanding of the subject matter. Descriptive statistics, such as frequency tables, percentages, means, and standard deviations, were employed to interpret the data using IBM SPSS version 25.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Response Rate

The study examined the impact effects of mobile phone usage on the academic performance of private university students at Valley View University, Oyibi Campus, Accra, Ghana. Of 384 copies of the questionnaire administered to the respondents, 357 were retrieved and valid for the analysis, representing a 98% response rate.

4.1.2 Students' Demographic Information

This survey sought students' background information, including gender, age, and year of study. Table 4 presents the demographic data of students.

Table 4

Gender Distribution

Gender	Frequency (n)	Percentage (%)
Male	185	52
Female	172	48
Total	357	100

Source: Field data, 2025

Table 4 revealed that out of 357 respondents, 185 (52%) were male students, while 172 (48%) were female students. The results suggest that male students were more represented in the study than their female counterparts. The higher proportion of male respondents also reflects their interest in the survey. The results of this current study is not in tandem with Ikenwe et al. (2021), whose findings indicated that female respondents were more than the male respondents

Table 5

Age Distribution

Age Group	Frequency (n)	Percentage (%)
15-17	66	18.5
18-20	135	37.8
21-23	97	27.2
24-26	35	9.8
27 and above	24	6.7
Total	357	100

Source: Field data, 2025

The data in Table 5 showed that the largest age group fell between the ages of 18–20 years, with 135 respondents (37.8%), followed by 97 respondents (27.2%) between the age bracket of 21–23 years, while 66 respondents (18.5%) fell between 15–17 years; 35 respondents (9.8%) were in the age bracket of 24–26 years; and the last group fell between 27 years and above, with 24 respondents (6.7%). Most students are between 18 and 20 years old. The age distribution reflects the typical composition of university students. Younger individuals tend to exhibit higher levels of mobile phone addiction at the expense of their studies. This practice has negative consequences on their academic performance.

Table 6

Level of Study Distribution

Level of study	Frequency (n)	Percentage (%)
Level 100	70	19.6
Level 200	97	27.2
Level 300	101	28.3
Level 400	89	24.9
Total	357	100

Source: Field data, 2025

The findings in Table 6 found that the majority of the respondents, 101 (28.3%), are in level 300, followed by 97 (27.2%) who are in level 200, while 89 respondents (24.9%) are in level 400. The results implied that students in levels 200 and 300 participated in the study more than those in levels 100 and 400. The distribution of students across multiple levels in this study illustrates the diverse representation in the sample. The distribution sheds light on how academic levels might affect mobile phone usage among students.

Table 7*Students' Levels of Mobile Phone Addiction*

Response	Frequency (n)	Percentage (%)
Highly addicted	131	36.7
Moderately addicted	122	34.2
Mildly addicted	80	22.4
Not addicted	24	6.7
Total	357	100

Source: Field data, 2025

The findings on mobile phone addiction showed that out of 357 respondents, 131 (36.7%) indicated that they were highly addicted to their phones, followed by 122 (34.2%) who were moderately addicted, and 80 (22.4%) showed mildly addicted; only 24 (6.7%) indicated that they were not addicted. The findings reinforce the results of Joy and Mathew (2016), who identified a high level of mobile phone addiction among college students. Again, the results of the current study agree with Davey and Davey (2014), who reported that the use of smartphones among Indian students was high, resulting in addiction due to their misuse.

Table 8*Daily Duration of Mobile Phone Use among Students*

Response	Frequency (n)	Percentage (%)
Less than 1hour	65	18.2
1-3 hours	134	37.5
4-6 hours	87	24.4
More than 6 hours	71	19.9
Total	357	100

Source: Field data, 2025

The data in Table 8 shows that the majority of respondents, 134 (37.5%), spent 1–3 hours daily on their mobile phones, followed by 87 (24.4%) who spent 4–6 hours on their phones while 71 (19.9%) spent more than 6 hours daily, 65 (18.2%) of the students use their phones for less than 1 hour daily. This discovery contradicts the results of Mengistu et al. (2023), which found that students used phones for over 4 hours daily, whereas Wilmer et al. (2017) indicated that students used phones for 4 to 10 hours each day. Again, the current finding is not in tandem with the earlier study by Fook et al. (2021), which revealed that 45.5% of the respondents used their mobile devices for 3 to 6 hours daily, while 27.3% used them for 7 to 10 hours. Additionally, 5.5% reported over 20 hours of daily smartphone usage. The extent of time spent on mobile devices is vital for students' health and education.

4.1.3 Reasons for Mobile Phone Usage among Undergraduate Students

The Relative Importance Index (RII) was used to rank factors based on their perceived importance. The RII was calculated using the following formula:

$$RII = \frac{\sum W}{A \times N}$$

$$RII = \text{Sum of weights} = \frac{(W1 + W2 + W3 + W4 + W5)}{A \times N}$$

Where: W = weight assigned to each factor by respondents (ranking values)

A = highest weight (in this case, 5)

N = total number of respondents (357)

This part of the study used the Relative Importance Index to determine the factors influencing the reason for mobile phone usage based on a Likert scale of 5-point levels of agreement. Thus, the degree of contribution was categorised on a five-point Likert scale, as follows: 1 = very low, 2 = low, 3 = moderate, 4 = high, and 5 = very high.

The Relative Importance Index (RII) was calculated based on the following equation:

$$\text{Relative Importance Index: } \Sigma w = \frac{W1 + W2 + W3 + W4 + W5}{A \times N}$$

$$\text{Social networking} = \frac{(58 \times 1) + (75 \times 2) + (48 \times 3) + (89 \times 4) + (87 \times 5)}{5 \times 357}$$

$$= 58 + 150 + 144 + 356 + 435 / 1785 = \mathbf{0.640}$$

Table 9*Reasons for Mobile Phone Usage among Undergraduate Students*

Response	1	2	3	4	5	RII	Rank
Social networking	58	150	144	356	435	0.640	1st
Academic purposes	77	132	240	232	380	0.594	2nd
Research & assignments	87	158	171	240	370	0.574	3rd
Seeking news & information	99	112	267	252	250	0.549	4th
For sharing images	110	130	138	324	275	0.547	5th
Watching videos	98	110	288	244	235	0.546	6th
Communication with friends & family	101	168	213	140	330	0.533	7th
For entertainment	130	122	270	164	175	0.482	8th

Source: Field data, 2025

The analysis using the Relative Importance Index (RII) found that social networking ranked 1st (RII = 0.640), followed by academic purposes 2nd (RII = 0.594), while research and assignments ranked 3rd (RII = 0.574) for sharing images and others ranked 4th (RII = 0.546) and 5th (RII = 0.533), respectively. The findings are consistent with the results of Gritti et al. (2023) and Ahmad (2020), which indicate that students use mobile phones as learning tools to access social media networks for educational materials. Mainga (2016) found that 42% of Laikipia University undergraduate students use Facebook daily, while 34% access it at least twice a week, indicating significant engagement with social media among university students. This ranking offers significant insights into how students prioritise their mobile phone activities, highlighting a notable trend towards social networking.

Table 10*Effects of Mobile Phone Use on Academic Performance*

Statements	Mean	SD
Excessive mobile phone usage negatively affects my study habits.	2.652661	1.110383
Mobile phone usage during lectures distracts students' lessons.	2.610644	1.105247
Mobile phone use often delays me in completing academic tasks.	2.582633	1.105162
I struggle to focus on academic work due to mobile phone distractions	2.560224	1.096413
Non-academic phone use affects my performance.	2.557423	1.114351
Mobile phone use helps me manage my academic tasks effectively	2.554622	1.131997
I feel anxious or restless when I am not using my mobile phone.	2.535014	1.112761
Using my mobile phone enhances my academic performance	2.467787	1.105247
I prefer studying with my mobile phone for research, and e-books.	2.456583	1.125018
Late-night mobile phone usage affects my ability to concentrate in class	2.411765	1.112330

Source: Field data, 2025

Table 10 showed a negative effect of excessive mobile phone usage on students' learning habits ($M = 2.652661$; $SD = 1.110383$), followed by mobile phone usage interrupting students' educational pursuits. ($M = 2.610644$; $SD = 1.105247$). The data revealed again that students often delay their academic tasks due to mobile phone use ($M = 2.582633$; $SD = 1.105162$). Furthermore, some respondents, with scores of ($M = 2.560224$; $SD = 1.096413$), indicated that they struggle to focus on academic work due to mobile phone distractions. On the other hand, respondents ($M = 2.557423$; $SD = 1.114351$) agreed that non-academic phone use affects their performance. These findings contradict those of Sheng (2025) and Raza et al. (2020), which linked excessive phone use to physical strain, cognitive, and psychological challenges, as well as disrupted and reduced academic performance.

4.2 Discussion

4.2.1 Students' Levels of Mobile Phone Addiction

The trend of mobile phone use by students has reached unparalleled heights. The majority of students depend on their mobile devices for communication, entertainment, and educational purposes. The results on the extent of mobile phone addiction indicated that the majority of the students were highly addicted to their mobile devices. The findings are consistent with those of Eldesokey et al. (2021) and Samaha and Hawi (2016), who also indicated high levels of mobile phone use. Again, the results of the current study corroborate those of Davey and Davey (2014), who discovered a high prevalence of smartphone usage among Indian students. Students' behaviour indicates possible disruptions in their educational activities and difficulties paying attention to their academic work.

4.2.2 Daily duration of mobile phone use among students

A large number of students dedicate a substantial part of their day to engaging with mobile phones. Some individuals often exceed the usual hours in a day, which negatively impacts their educational activities. The data obtained on the duration of mobile phone usage showed that most respondents spent 1 to 3 hours daily on their mobile phone devices. This result disagrees with Ataş and Çelik's (2019) observation, which found that university students typically dedicate an average of 5 hours each day to mobile phone usage. Furthermore, the results are inconsistent with Quist and Quarshie's (2016) study, which found that students spent 7 hours or more on their mobile devices. Mobile phones offer convenience and access to information, but excessive time spent on these devices may affect students' academic performance either positively or negatively.

4.2.3 Reasons for Mobile Phone Usage among Undergraduate Students

The extensive use of mobile phones by undergraduate students is due to the flexibility and multi-functionality these devices offer. Students engage with mobile phones for communication, social networking, and academic tasks, which makes them vital instruments in their lives. The results indicated that students use their mobile phones to access social networking platforms. This result confirms Al-Fawareth and Jusoh (2014) that the majority of students predominantly use their smartphones to connect with online social networks rather than for educational purposes. This study's findings corroborate those of Lee et al. (2021), that students use mobile phones for over three hours daily on weekends, with social media being the most commonly accessed platform. This result is also in consonance with the findings of Edjah and Nkrumah (2023), who found that students use mobile phones for social media interactions, such as listening to music, sharing videos, recording conversations, making video calls, accessing the internet, and sharing music through Bluetooth.

4.2.4 Effects of Mobile Phone Use on Academic Performance

The prevalence of mobile phone usage among students has risen in recent times due to technological advancement, presenting numerous benefits to users. The results revealed that excessive mobile phone use has led to a negative impact on students' academic performance. These findings are inconsistent with Chathurangaa and Jaysundarab (2021), whose study found that students use smartphones to exchange information with peers and lecturers.

According to their results, this has contributed to an enhancement in their academic achievements. Abdulmalik and Anka (2024) posited that smartphones provide students with access to learning resources. Their findings deviate from the current studies. All the aforementioned studies indicate that mobile phones have established new opportunities for students' learning despite their challenges. It is vital for students, educators, and guardians to be aware of these threats and to advocate for a balanced and thoughtful use of mobile phones.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The study was to examine the effects of mobile phone use on the academic performance of undergraduate students at VVU. The findings indicated that mobile phone addiction is widespread among the majority of students. Students frequently and persistently use mobile devices beyond the usual hours. The constant use of these technologies leads to negative consequences in the academic achievement of students. The habit of regular phone use also disrupts students' focus, time management, and academic performance. Mobile phones are essential instruments for communication and education; their unregulated and excessive use presents considerable obstacles to students' achievement. Addressing this phenomenon requires a culture of collaboration from students, instructors, parents, and institutional authorities to encourage responsible and meaningful mobile phone usage within the university setting.

5.2 Recommendations

Based on the findings of the study, the following are the recommendations: The study recommended that students should be encouraged to use mobile phones for their academic purposes. Students should desist from the excessive use of mobile devices to avoid poor academic performance. The university should formulate and enforce policies to regulate the use of mobile phones on campus, most especially in the learning rooms, lecture halls, and libraries. These policies should focus on promoting the responsible use of mobile technologies for academic work, rather than a total ban. The study recommended mobile phone etiquette to help reduce distractions during class time. The study suggested that parents/ guardians should be actively involved in the battle against the menace of excessive mobile use both at home and in school. The university management should consider offering a semester course on the risks associated with excessive mobile phone use as part of extracurricular activities. The alumni (old students') association and policymakers should collaborate with the university management to implement strategies that encourage responsible use of mobile phones. These measures should focus on educating students on the constructive use of mobile phones.

The study recommends awareness activities to sensitise students about the impact of cell phone usage on academic performance. The university should organise periodic orientations/ user education, workshops, and seminars on the detrimental effects of mobile phone use.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Comparative analysis of academic performance differences between public and private secondary schools: A systematic review of literature

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ABSTRACT

This study explored factors behind differences in academic performance between public and private secondary schools. It focused on school-level, teacher-related, and socioeconomic influences. The current research was based on the Education Production Function Theory. A systematic review of 18 peer-reviewed studies published from 2005 to 2025 was conducted. The studies covered global and African contexts. Databases, such as Scopus, Dimensions, and Web of Science, were searched using terms related to academic achievement, secondary education, and school type. Only studies involving secondary school students and teachers that reported measurable outcomes on performance gaps were included. Data were analyzed thematically, and recurring patterns were identified using inductive coding. The findings showed that private schools often achieved higher results, particularly in mathematics, science, and literacy. This performance was linked to better learning resources, smaller class sizes, motivated teachers, and effective management practices. Socioeconomic status and parental involvement reinforced these advantages. Public schools faced challenges such as limited resources and weaker home support. The results indicate that school capacity, teacher quality, and household conditions, rather than school type alone, shape performance differences. The study recommends that policymakers improve resource allocation, strengthen teacher supervision, and enhance parental engagement in public schools.

Key words: Difference, Performance, Private, Public, School

I. INTRODUCTION

The variation in academic performance in both the public and the private schools is not a new literature topic in the world of education. According to empirical evidence provided by Kunwar (2021), there is an increase in the pass rate in private schools, which is explained by the fact that learning in such institutions is organized. The same tendency can be followed in the works of Annoh (2024), who records higher examination results in the private institutions. Shehzadi et al. (2022) have made observations that shed light on how the discipline systems of the private schools create regular study practices among the learners. A similar trend is reported by Kalasa et al. (2023) who describe the process of facilitating academic effort in school culture via performance expectations. The explanations provided by Olasehinde and Ademola (2014) are linked to the enhanced results of learners concerning the regular scholastic supervision. In James (2018), it is pointed out that different schools have unique differences in practices of exam preparation. The current literature does not pay much attention to rural public schools, even though they have special conditions of learning. The aspect of learner persistence and coping skills in resource-limited environments is still unrepresented in the previous academic discourse.

Academic performance in school systems is still influenced by student background factors. As arguments by Duncan and Sandy (2007) put it, there is a connection between economic stability in a household and the involvement of the learners in the school activities. Newhouse and Beegle (2005) also support the views and relate parental education levels to motivation among learners. The explanations made by Cheema (2024) imply that achievement patterns of different school types are affected by socioeconomic status. An analogous stand is echoed in Cheema (2025) where the effect of performance differences is seen to diminish once the background characteristics are factored in. According to interpretations by Lassibille and Tan (2001) the efficiency of public schools is found to improve after adjusting the demographic conditions. On the basis of comparative reviews of Turkey and Tanzania, there are similar trends when considering contextual variables. This is not a field where the longitudinal follow-up of learners is undertaken. The limitation of capturing learning development in the long term is associated with heavy dependence on cross-sectional studies.

The outcomes associated with the subjects still show differences between school environments. The studies in Shehzadi et al. (2022) show that there are better performances in mathematics in the private schools, which can be explained by carefully designed instructional practices. Considerations by Olasehinde and Ademola (2014) relate the literacy performance to access to reading resources. As discussions in Cheema (2024) indicate, even in the private institutions, numeracy achievement seems to be uneven. Discussions made by Cheema (2025) outline the unremitting disparities in literacy in environments of learning. A study based in Qatar associates technology-based teaching with improved science learning (Cheema, 2023). The subject mastery in the interpretations of Delprato and Antequera (2021) relates to the time spent on instructions. Positions given by Angwaomaodoko (2025) relate the use of language at home and the academic performance in academic subjects. Minimal assessment of teacher subject mastery under different school situations still has an impact on explicitness in this field. The attitudes of the learners towards particular subjects are given limited coverage in previous studies.

Institutional resources are still a significant factor in academic performance. As can be seen in descriptions of Kunwar (2021), the classroom setting in private schools has an advantage of a better infrastructure. According to the explanations provided by Kalasa et al. (2023), the availability of learning materials is greater in the private institutions. According to Annoh (2024), the problem of overcrowding has remained a major problem in the public schools. Facility quality is associated with learner concentration and learners engagement albeit in different ways as described by Delprato and Antequera (2021). According to accounts in Shehzadi et al. (2022), the availability of labs promotes the success of science. Olasehinde and Ademola (2014) note relationships between reading ability and the library access. Lassibille and Tan (2001) interpretations cover the impact of the school management practices on the use of the resources available. There is little writing about the reactions of public school to lack of physical and learning materials. The efforts of the government to help in improving the facilities of schools receive little systematic attention.

Academic performance patterns are also determined by the teacher related and home environment factors. The topics of teacher motivation and classroom efficiency are linked in the discussions in Kurabachew (2019). According to Kunwar (2021), there are indications that supervision practices are stronger in the case of private schools. In Shehzadi et al. (2022), teacher punctuality is observed to be linked with consistent learner improvement. Angwaomaodoko (2025) makes reflections on the contribution of parental involvement to the study habits. According to the interpretations made in Cheema (2024), home learning resources are associated with an increase in engagement among learners. The opinions of Delprato and Antequera (2021) link family income with further learning assistance. According to the explanations in James (2018), the community attitudes affect school attendance patterns. Little attention is given to the scholarly literature on professional learning opportunities of teachers in the public schools. Learning in the informal settings at home is not well studied.

1.1 Statement of the Problem

Variation in academic performance between public and private secondary schools remains a persistent problem, with private schools continuing to record higher academic outcomes than public schools. Previous studies have attempted to address this problem by examining school organization and instructional practices, where Kunwar (2021) explains higher pass rates in private schools through structured learning arrangements, while Annoh (2024) associates superior examination results with effective institutional management. Other explanations focus on school discipline and learning culture, as Shehzadi et al. (2022) describe how discipline systems in private schools promote regular study habits and sustained academic engagement. Despite these contributions, important issues remain unresolved, particularly the limited attention given to rural public schools, learner persistence in resource-constrained environments, and the long-term development of learning outcomes. Consequently, this study intended to examine school-level, teacher-related, and socioeconomic factors influencing academic performance differences between public and private secondary schools in order to address these gaps in the existing literature.

1.2 Research Objective

The objective of this study was to examine the school-level, teacher-related, and socioeconomic factors influencing differences in academic performance between public and private secondary schools.

II. THEORETICAL REVIEW

The current research was based on the Education Production Function Theory (1979) by Hanushek, which conceptualizes academic achievement as the result of the inputs that are generated by the school, teacher and household. As per the theoretical model, the outcome of learning is optimized when vital factors like adequate teaching materials, effective school administration, as well as qualified teaching staff, are available and coordinate harmoniously (Hanushek, 1979). The theoretical perspective was relevant to the study at hand since the identified

differences in the academic performance of public and private secondary schools were related to the heterogeneity of the resources provided and the organization of the institutions, which is in line with the existing literature that highlights the perennial importance of school inputs when they are appropriately exploited (Hanushek, 2020). Moreover, the socioeconomic element is present in the theory since it takes into consideration the family background as a key input that determines the results of learning, and this view is supported by recent syntheses that state that parental involvement and home support have a significant impact on student performance (Nunes et al., 2023). The strength of the use of this theory was that it was able to combine school, teacher-based, and household effects in the same explanatory model.

However, there are limitations of the theory. A major disadvantage is that it has a strong focus on measurable inputs that can override contextual and behavioral variables including school climate and student motivation that can influence academic performance as well (Musengamana, 2023). Another drawback is the implicit belief that similar inputs can have the same effect, but recent empirical studies show that the effectiveness of resources depends on how they are implemented in certain institutional settings (Wang & Wei, 2024). These limitations might have constrained the perception of interpretation about non-material and process-oriented impacts as indicated in some of the reviewed studies. Notwithstanding these limitations, the theory was still relevant since it provided a logical and coherent framework of synthesizing evidence in varied contexts and to explain the role of the interaction between the school capacity, teacher quality, and domestic conditions in creating performance disparities between public and private secondary schools.

III. METHODOLOGY

This current research involved a systematic review as a research approach to examine the determinants of the academic performance differences between the public and the private secondary schools. The review also included empirical evidence that was retrieved out of eighteen studies that were published between the years 2005 and 2025 and reflected both the global and African contexts. Search strategies were used in Scopus, Dimensions, and Web of science databases in order to find peer-reviewed articles hence making sure that credible and extensive sources were used. The search terms were built using the terms of academic achievement, student performance, secondary education, public schools, and private schools using the operators of the Boolean operators. Open access filters were used to access full-text access and a narrow scuffle was restricted to English-language sources in order to encourage uniformity and comparability between sources. The systematic approach made it easier to present the overall trends and context-specific determinants of the performance difference and maintain the methodological rigor.

The screening of eligibility was conducted based on criteria modified based on the SPIDER framework (Sample, Phenomena of Interest, Design, Evaluation, and Research type). The inclusion criteria included eligible studies in terms of including both students and teachers at the secondary schools, using either a quantitative, qualitative, or mixed-method study design, and providing empirical evidence regarding the presence of academic achievement gaps. Articles that were not based on specific research design, were considered reviews, theses or conference proceedings were excluded. The 2005-2025 timeframe was chosen to reflect both long-term patterns and more recent data that portrays changes in the educational policy, resource distribution, as well as pedagogical approaches. The screening was done in two steps, first to filter the irrelevant records by initial screening based on titles and abstract, and then to conduct a full screening based on the inclusion criteria with the full-text content. Reviewers were required to have inter-rater agreement that ensured that there was consistency in the selection of the article and disagreements were negotiated and resolved to ensure reliability.

The selected studies were quality appraised using criteria based on the Mixed Methods Appraisal Tool (MMAT) whose focus is on methodological rigor, research design clarity, and sampling and data collection process appropriateness. The studies that qualified as high-quality and were published in the journals ranked in the first to third quartiles were included alone. They were followed by data extraction and analysis via inductive coding of the thematic synthesis, which allowed the identification of the textual material on the core factors such as resources, teacher quality, management practices, and socioeconomic influences in the text. The frequency and the illustrative examples of each factor were noted to provide a light on patterns and contextual details. Through the combination of these methodological procedures, the current study aimed to provide a holistic knowledge of the role of institutional, pedagogical and familial factors in the difference in academic performance between public and private secondary schools, to guide policy and practice.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Academic Achievement Gaps

It has been observed that differences between the achievements of the students in the public and the private schools have been reported widely in the body of research reviewed. There is a majority of research indicating that the pass rates and examination results have proven to be higher in the private institutions as compared to the ones in the public institutions. Similar findings corroborated by empirical evidence by Kunwar (2021), Annoh (2024), Shehzadi et al. (2022), Kalasa et al. (2023), Olasehinde and Ademola (2014), and James (2018) support higher attainment levels in the private schools compared to the public options. However, in a portion of studies, it has been found out that the performance gap between public schools is reduced once the variables of student background are manipulated. According to Cheema (2025), Cheema (2024), Duncan and Sandy (2007), and Newhouse and Beegle (2005), a large portion of the differences can be explained by socioeconomic conditions. Further evidence in Turkey and Tanzania indicates the heterogeneous results; once the aspects of backgrounds and contexts are taken into consideration, the relative efficiency of the public schools has been observed (Cheema, 2025; Lassibille & Tan, 2001).

The review also reveals that performance in subject specific tests differ among the various types of schools and the private schools often perform better in mathematics science and literacy areas than their counterparts the public schools. The results provided by Shehzadi et al. (2022) and Olasehinde and Ademola (2014) allow substantiating the claim that the student of a private school will score higher in mathematics and science due to better teaching materials and an increased level of teacher devotion. The existing international literature, among them, the works by Cheema (2025), Cheema (2024), and a Qatar-based study Cheema (2023), proves that differences in literacy and numeracy could still be observed within the institutional setting, but these disparities are often mitigated by the factors of background. The implication of these findings is that the benefits of the private schools are both generalized and subject specific, especially in those aspects where the input of instruction is highly required.

The review shows that the performance difference between the public and the private schools varies with the regional and national contexts. According to Delprato and Antequera (2021), in Latin America, the performance of private schools is higher in terms of efficiency scores, though public schools might also score significantly higher in case the issues of inequality were solved. Kunwar (2021) note that in India, a significant part of the private school advantage is provided by absenteeism and homework time. Cheema (2025) discover that there is variation in the predictability of the advantage based on considering student-level or school-level predictors, giving conflicting outcomes. In Africa, similar trends are confirmed by evidence in Zambia, Nigeria, Ghana, Kenya and Tanzania that show that the performance of the private schools is consistently high compared to the performance of the public schools, which is due to the solid resource grounds, and the engagement of the teachers (Kalasa et al., 2023; Angwaomaodoko, 2025; Annoh, 2024; James, 2018; Lassibille & Tan, 2001). These regional contrasts make it clear that the circumstantial advantage of the private school is a global trend even though the strength of this school advantage and the causes of such a trend depend on the context-related factors.

4.1.2 Effects of Resources and Facilities on Performance Differences

The review has shown that the availability of resources and school facilities is critical in the explanations of the performance differences between the public and private secondary schools. Kunwar (2021), Kalasa et al. (2023), Annoh (2024), and Delprato and Antequera (2021) highlight that; access to teaching and learning materials, information and communication technology, infrastructure and good classroom management improves student learning, which is more often seen in the case of private schools. On the other hand, the public schools are often facing the problem of limited resources, crowded classrooms, and lack of adequate learning materials, thus threatening the results of learning. This fact points to the fact that the differences in resourcing are the strengtheners to the achievement gap between school types.

4.1.3 The Teacher Quality, Teacher Motivation and Teacher Management and Teacher Performance Differences

The review suggests that the importance of teacher quality, teacher motivation and management practices is at the center of driving the student performance differentials between the school types. According to Kunwar (2021), Kalasa et al. (2023), and Shehzadi et al. (2022), teachers working in a private school tend to be more motivated and more closely supervised, which is why they show a higher degree of classroom engagement and more productive teaching habits. Kurabachew (2019) also emphasizes the importance of management structural and organizational culture in the contribution to teacher performance and student outcomes. Conversely, schools in the public often have issues of absenteeism of teachers, low morale and poor supervision which are detrimental to the achievement of students compared to those in the private schools.

4.1.4 Impact of Socioeconomic and Parental Influence on Performance Differences

The review shows that socioeconomic status and parental influence are pivotal factors that exude performance differences between the public and the private school. Angwaomaodoko (2025), Cheema (2024), and Delprato and Antequera (2021) state that students with higher socioeconomic status, which have higher chances of entering a own school, demonstrate higher achievements because of the availability of more resources, improved parental support, and favorable learning conditions. The second article by Annoh (2024) and Angwaomaodoko (2025) focuses on how the literacy and occupation of parents, as well as their involvement, influence the achievement of students. Since fewer parents with disadvantaged backgrounds have access to higher socioeconomic status and access to their children because of the high percentage of disadvantaged students, the burden of weaker parental support and lower socioeconomic capacity limits the performance observed in public schools.

4.2 Discussion

The systematic review shows that there is still academic achievement differences between public and private secondary schools regardless of the contexts and usually better results are achieved in the private schools. According to Kunwar (2021), Annoh (2024), and Kalasa et al. (2023), private schools have higher pass rates and national exams than their counterparts in the state schools. Similarly, higher performance in mathematics and science among the cohorts of the private school is supported by Shehzadi et al. (2022) and Olasehinde and Ademola (2014). On the other hand, Cheema (2024) refutes the fact that a performance difference is significantly smaller after the socioeconomic background is accounted, which means that the structural inequalities explain as much variance as institutional ones. The empirical evidence of Turkey and Tanzania shows further that the relative efficiency of the public schools can be attained, in case the contextual variables are considered (Lassibille & Tan, 2001; James, 2018). These findings would indicate that the difference in performance cannot be traced to school type alone but rather it arises as a result of the interaction of institutional, contextual and student factors.

The review also suggests that the availability of resources and the quality of infrastructure are the decisive factors of the differences in performance. As it is shown by Kunwar (2021), Kalasa et al. (2023), and Delprato and Antequera (2021), students in the private school have more access to instructional materials, information and communication technologies, and physical infrastructure. Annoh (2024) argues that smaller sizes of classes enhance performance in private schools due to the better management in the classrooms. Conversely, on the one hand, in public schools, there is overcrowding, poor infrastructure, and lack of learning resources, which undermines academic performance (James, 2018; Kunwar, 2021). However, Cheema (2024) mentions that even in resource-bound public schools, judicious resource allocation can bring significant benefits. These results confirm that achievement gaps are aggravated by the resource disparity, and at the same time, they highlight how school level management can mediate that material input is converted to learning by students.

Student achievement also differs based on poor teacher quality, teacher motivation, and administrative practices. According to Shehzadi et al. (2022), Kunwar (2021), and Kalasa et al. (2023), the teachers working in a private school are characterized by high rates of engagement, motivation, and instructional commitment. Kurabachew (2019) cites strong management frameworks and unique organizational culture in the private schools as tools that increase the accountability and supervision of teachers. On the other hand, the state schools are faced with absenteeism and reduced morale, as well as weaker support systems, which reduce the quality of the teaching (Angwaomaodoko, 2025). The studies conducted by Cheema (2024) and Duncan and Sandy (2007) prove that with proper support of public school teachers, the performance of teachers increases significantly, implying that the effectiveness of teachers does not directly depend on the type of school but on the systemic quality control and professional growth.

Parental involvement and socioeconomic status are also the critical determinants of performance gaps. Angwaomaodoko (2025) and Annoh (2024) argue that learners in the private schools are generally the children of higher-income backgrounds, in which the literacy levels of their parents, their occupational status, and their active participation contribute to the improvement of their learning outcomes. As Delprato and Antequera (2021) have shown, the advantage of private schools is mostly explained by socioeconomic inequality in Latin America. Cheema (2024) also states that the household resources and parental engagement have significant impacts in addition to the school-level contributions on later achievements. Kalasa et al. (2023) and James (2018) discover that disadvantaged students are overrepresented in the public schools, and their home environments suppress their learning opportunities. However, according to the study conducted by Kumar and Choudhury (2021), long-term parental engagement even in low-income families has a positive impact, and the authors suggest reinforcing parent-school collaboration effective in overcoming the disadvantages faced by students in public schools. Taken together, these results imply that the performance gap is contextualized by the household-based factors as well as the institutional features.

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusion

It is concluded that the performance gap between the public and the private secondary schools has been persistent over the years both in global and regional backgrounds with the latter always demonstrating high levels of academic performance. These differences can be explained by not only an institutional variable, such as resource distribution, the quality of teachers, and the administration of schools, but also more general socio-economic and family factors, including such variables as socioeconomic status and parental support. As much as it is a common fact that private schools are usually advantaged in terms of better facilities, small classes, and teachers who are more motivated, overcrowding, under-resourced schools, and lack of parental involvement are issues that face the public schools. However, empirical research studies have revealed that the socioeconomic background and contextual variables are controlled, and under these circumstances, the performance of the public schools has been efficient, thus reducing the gap in performance as compared to their counterparts, that is the privately operated schools. This finding indicates that the difference in performance is not governed purely by school type but through a combination of the institutional capacity and household background as well as systemic inequalities. In this connection, the review finds that there is a significant research and policy gap on how the limited resources of public schools can be effectively utilized, how to boost teacher motivation, and parental involvement to better the outcomes, and at the same time proposes strategies that could be used to reduce the structural inequalities in which achievement disparities are founded on.

5.2 Recommendation

According to the results of the review, it can be recommended that the development of the capacity of the public secondary schools in Tanzania should be the priority of the education policies, which is achieved by better resource allocation, effective teacher control, and the reinforcement of the accountability systems. The areas that should be invested in to close learning gaps include mitigation of overcrowding and increasing access to instructional materials and integration of technology. At the same time, teacher motivation and development should be considered in terms of better supervision, reward system, and enabling school management framework. There is also a need to work towards improved parental engagement especially in low-income neighborhoods where schools and families can work in conjunction and mitigate the challenges faced by the students in the public schools. To provide equal learning opportunities, policy makers should also take into account interventions that are more focused on large-scale socioeconomic disparities like school feeding programs and conditionality to disadvantaged households. Lastly, this should be followed by continuous monitoring and context-specific research to produce evidence-based strategies that help lessen the performance gap between the public schools and the privatized schools and bring about equity in education.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Service design for reducing waiting times and improving patient experience in Tanzanian primary-healthcare facilities

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ABSTRACT

Across healthcare systems worldwide, long waiting times and unsatisfactory patient experiences continue to signal persistent inefficiencies in service delivery. However, there is the lack of empirically grounded guidance on how service design principles can be applied to reduce waiting times while simultaneously enhancing patient experience in a sustainable and contextually appropriate manner. This study investigates how service design can be applied in Tanzanian primary healthcare facilities to reduce waiting times and improve patient experience, specifically in major urban centres including Arusha, Dodoma, Dar es Salaam, Mbeya, and Mwanza. This study is grounded in service design theory and contemporary services marketing perspectives. It uses positivism, quantitative approach, descriptive and explanatory cross-sectional design. Data were collected through structured questionnaire from 462 patients who were sampled using a multi-stage sampling strategy in primary healthcare facilities in major urban centres including Arusha, Dodoma, Dar es Salaam, Mbeya, and Mwanza. The data were analysed using descriptive statistics and structural equation modelling. The findings demonstrate that service design practices play a pivotal role in enhancing both operational efficiency and patient experience. Well-designed service processes are associated with significantly shorter patient waiting times ($\beta = -0.46, p < 0.001; R^2 = 0.42$), while longer waits substantially undermine perceptions of service quality, responsiveness, and overall satisfaction ($\beta = -0.39, p < 0.001$). Service design practices also exert a direct positive effect on patient experience ($\beta = 0.41, p < 0.001$), with the model explaining a substantial proportion of experiential variance ($R^2 = 0.58$). The partial mediating role of waiting time ($\beta = 0.18, p < 0.001$) indicates that efficiency and experience are complementary outcomes of service design. These findings indicate that integrating service design into primary healthcare management is not only an operational improvement tool but also a critical pathway for achieving patient-centred, efficient, and sustainable health service delivery in Tanzania. Accordingly, the study recommends adopting service design as a strategic approach to support more responsive and sustainable healthcare services in Tanzania.

Keywords: Patient Experience, Primary Health Care, Service Design, Waiting Time

I. INTRODUCTION

Across healthcare systems worldwide, long waiting times and unsatisfactory patient experiences continue to signal persistent inefficiencies in service delivery. These challenges are particularly pronounced in complex healthcare environments, where patients often navigate multiple service touchpoints before receiving care (Hafiz *et al.*, 2024; Siciliani *et al.*, 2013). Beyond their operational implications, prolonged waiting and fragmented experiences undermine patient trust and satisfaction, factors increasingly recognised as critical to treatment adherence, health outcomes, and service utilisation (Wolf *et al.*, 2014).

In response to these enduring challenges, service design has gained growing attention as a promising approach for rethinking healthcare delivery (Ostrom *et al.*, 2019; Palazzo *et al.*, 2024). Rooted in human-centred principles, service design places patients and frontline staff at the core of innovation, offering structured methods to uncover process bottlenecks, redesign service flows, and improve the end-to-end patient journey (Patrício *et al.*, 2017; Rego *et al.*, 2022; Palazzo *et al.*, 2024). By emphasising co-creation, experiential insight, and systemic thinking, service design enables healthcare organisations to move beyond incremental efficiency fixes toward more meaningful and sustainable improvements in both service performance and patient experience (Patrício *et al.*, 2017; Ostrom *et al.*, 2019; Frow *et al.*, 2016).

Healthcare systems are inherently complex service ecosystems characterised by diverse patient needs, multi-stage interactions, and the involvement of numerous professional and organisational actors. This complexity renders service delivery particularly vulnerable to coordination failures and process inefficiencies, which frequently manifest in



long waiting times and fragmented patient experiences (Ostrom *et al.*, 2019). Consequently, waiting time has emerged as a critical indicator of systemic strain, with prolonged delays consistently associated with lower patient satisfaction, reduced trust in providers, and poorer perceived care outcomes (Siciliani *et al.*, 2013; Wolf *et al.*, 2014).

Empirical evidence from both high-income and resource-constrained settings confirms the pervasiveness of this problem. Studies conducted in primary and referral healthcare facilities across diverse contexts report extended waiting periods that negatively shape patients' perceptions of service quality and overall performance (Biya *et al.*, 2022; Dibba *et al.*, 2025). These findings highlight the limitations of isolated efficiency-oriented interventions and point to the need for approaches that address the underlying design of healthcare service processes.

Beyond operational considerations, service design plays a central role in advancing patient-centred care. By fostering a deeper understanding of patients' needs, expectations, and emotional responses, service design allows healthcare organisations to prioritise experience alongside clinical quality (Frow *et al.*, 2016; Ostrom *et al.*, 2019). When patients are actively involved in shaping their care pathways, services are more likely to be perceived as respectful, responsive, and supportive of overall well-being, contributing to more sustainable improvements in both service performance and patient experience (Wolf *et al.*, 2014; Palazzo *et al.*, 2024).

The adoption and effectiveness of service design in healthcare are shaped by organisational and contextual conditions. Organisational culture, leadership commitment, resource availability, and frontline staff competencies play decisive roles in determining whether healthcare facilities can meaningfully engage in design-led service improvement (Ostrom *et al.*, 2019; Rego *et al.*, 2022; Palazzo *et al.*, 2024). Technological infrastructure including digital queue management systems and real-time feedback platforms further enables data-informed redesign by supporting coordination, communication, and bottleneck reduction across the care journey (Rego *et al.*, 2022; Palazzo *et al.*, 2024). Patient engagement also emerges as a critical enabler, as co-design workshops and experiential feedback loops help surface latent needs and refine service solutions in ways that purely administrative innovations cannot achieve (Frow *et al.*, 2016; Ostrom *et al.*, 2019; Wolf *et al.*, 2014).

In high-income countries, service design has increasingly been applied in both experimental and operational settings to improve patient flows and reduce inefficiencies (Patrício *et al.*, 2017; Ostrom *et al.*, 2019; Palazzo *et al.*, 2024). Interventions such as digital appointment systems and interactive patient information dashboards have contributed to shorter waiting times and improved satisfaction in European and North American healthcare facilities (Greenhalgh *et al.*, 2020; Siciliani *et al.*, 2013). These experiences demonstrate the potential of design-led approaches to simultaneously enhance efficiency and patient experience.

In contrast, evidence from sub-Saharan Africa reveals persistent challenges in primary healthcare settings, where staffing shortages, administrative delays, and resource constraints often prolong waiting times (Ayimbilla *et al.*, 2011; Kruk *et al.*, 2018; Nwagbara *et al.*, 2024). In Ethiopia, outpatient waiting times exceeding several hours have been documented, reflecting systemic issues that service design approaches could address through workflow realignment and improved patient communication (Biya *et al.*, 2022). Similarly, quality improvement initiatives in Ghana demonstrate that engaging patients in redesigning waiting experiences can improve satisfaction outcomes (Darkwa *et al.*, 2023). Across West Africa, waiting time remains a consistent predictor of patient satisfaction, underscoring the broader relevance of this issue (Dibba *et al.*, 2025).

In Tanzania, prolonged waiting times and uneven patient experiences persist across primary, district, and referral healthcare facilities, reflecting shortcomings in the design and coordination of service delivery rather than isolated operational failures. Evidence from Kilimanjaro Christian Medical Centre shows that targeted organisational and technical interventions such as workflow reorganisation and queue management can substantially reduce outpatient waiting times (Mwanswila *et al.*, 2024; Mollel & Mwanswila, 2024). However, similar challenges continue to affect large urban referral hospitals, including Temeke and Muhimbili, where administrative bottlenecks, fragmented patient pathways, and limited digital integration undermine efficiency and satisfaction (Venance, 2022; Mainda & Sulle, 2024).

Beyond operational performance, studies in district and municipal hospitals reveal that long waiting times, weak communication, and limited patient involvement strongly shape negative perceptions of care quality, even when clinical outcomes are acceptable (Chagula, 2025). Encouragingly, emerging human-centred design research in rural Tanzania highlights the potential of participatory service design to address these challenges more holistically. Co-design initiatives involving patients, healthcare workers, and community stakeholders in maternal and child health services have strengthened communication, improved relationships, and enhanced perceived responsiveness (Isangula *et al.*, 2024). Complementary evidence from simulation-based modelling further suggests that redesigning patient flows and reallocating resources can improve waiting times without substantial infrastructural expansion (Simwita, 2023).

Despite these contributions, the existing Tanzanian literature reveals a critical gap. Most studies approach waiting time reduction and patient experience as parallel rather than interconnected outcomes of healthcare service design. Operational studies prioritise efficiency metrics without systematically examining how redesigned processes are experienced by patients, while patient satisfaction studies remain largely descriptive and offer limited insight into deliberate service redesign (Bergh *et al.*, 2022; Simwita, 2023; Ruhazwe, 2024). Only a small number of studies



explicitly engage with participatory or co-design approaches, and these have yet to be extended to the broader challenge of end-to-end patient journeys across healthcare services (Isangula *et al.*, 2024).

As a result, healthcare managers and policymakers in Tanzania lack empirically grounded guidance on how service design principles can be applied to reduce waiting times while simultaneously enhancing patient experience in a sustainable and contextually appropriate manner. Addressing this gap requires research that explicitly positions waiting time reduction and patient experience as interconnected outcomes of healthcare service design, drawing on participatory methods and service design tools to redesign patient journeys within real-world settings. Accordingly, this study investigates how service design can be applied in Tanzanian primary healthcare facilities to reduce waiting times and improve patient experience.

1.1 Research Objective

- i. Examine how existing healthcare service processes are designed and how these designs contribute to patient waiting times and experience outcomes;
- ii. Analyse patient and frontline healthcare worker experiences across key service touchpoints to identify design-related bottlenecks;
- iii. Assess the extent to which human-centred and participatory service design practices can simultaneously reduce waiting times and enhance patient experience; and
- iv. Develop a service design-based framework integrating operational efficiency and patient experience improvement for application in Tanzanian healthcare facilities.

II. LITERATURE REVIEW

2.1 Theoretical Review

This study is grounded in service design theory and contemporary services marketing perspectives that conceptualise services as dynamic systems co-created through interactions among providers, users, and supporting infrastructures. In healthcare, these interactions unfold across multiple touchpoints and stages, making service outcomes such as waiting time and patient experience which highly dependent on how service processes are designed, coordinated, and experienced (Ostrom *et al.*, 2019). The theoretical framework integrates service design theory, customer (patient) experience theory, and value co-creation logic to explain how deliberate redesign of healthcare services can reduce waiting times while improving patient experience.

2.1.1 Service Design Theory in Healthcare

Service design theory emphasises the deliberate organisation of people, processes, physical environments, and supporting technologies to create services that are useful, usable, and meaningful for users (Patrício *et al.*, 2017). In healthcare contexts, service design provides a structured lens for understanding how patients move through service systems, how frontline staff interact with users, and how organisational arrangements shape service performance. By foregrounding service processes and experiences rather than outcomes alone, service design is particularly well suited to addressing persistent inefficiencies such as long waiting times (Rego *et al.*, 2022).

From this perspective, waiting time is not simply a capacity or scheduling problem but an outcome of how workflows, decision points, and handovers are configured across the patient journey. Tools such as patient journey mapping, service blueprinting, and touchpoint analysis allow healthcare organisations to visualise service processes holistically, identify bottlenecks, and redesign service flows in ways that enhance both efficiency and patient experience (Palazzo *et al.*, 2024). In this study, service design theory provides the central logic linking process redesign to improvements in waiting time and patient experience in Tanzanian healthcare settings.

2.1.2 Patient Experience Theory

Patient experience theory, grounded in the broader customer experience literature, conceptualises experience as a multidimensional construct shaped by cognitive, emotional, relational, and contextual factors across the service journey (Ostrom *et al.*, 2019). In healthcare, patient experience extends beyond clinical outcomes to include perceptions of waiting, communication, empathy, fairness, and responsiveness. Empirical evidence consistently shows that prolonged waiting times undermine patient satisfaction and trust, even when technical quality of care is perceived as high (Wolf *et al.*, 2014).

Within this framework, waiting time functions as both an objective indicator of service performance and a subjective experience that shapes patients' emotional responses and overall evaluations of care. Service design interventions influence patient experience by reshaping how waiting is organised, communicated, and perceived through clearer information flows, more predictable service sequences, and improved interactions with frontline staff (Rego *et al.*



al., 2022). Patient experience theory therefore explains why reductions in waiting time must be accompanied by improvements in service interactions to generate meaningful experiential gains.

2.1.4 Value Co-Creation and Human-Centred Design

The framework is further informed by value co-creation theory, which views service value as emerging through interactions between service providers and users rather than being unilaterally delivered by organisations (Frow *et al.*, 2016). In healthcare, this perspective highlights the importance of engaging patients and frontline staff as co-designers of services, recognising their experiential knowledge as a critical input into service improvement. Co-creation practices such as co-design workshops, participatory prototyping, and feedback loops enable organisations to surface latent needs and develop solutions that are better aligned with users' lived experiences (Palazzo *et al.*, 2024).

Human-centred design operationalises value co-creation by prioritising empathy, participation, and iterative learning throughout the service redesign process. In resource-constrained settings such as Tanzania, where opportunities for large-scale infrastructural investment are limited, co-creative service design offers a pragmatic pathway for improving service performance through process innovation rather than resource expansion.

2.1.5 Linking Service Design, Waiting Time, and Patient Experience

Taken together, these perspectives suggest that service design practices such as journey mapping, workflow redesign, and co-creation shape waiting time by reducing process inefficiencies and improving coordination across service touchpoints. Reduced and better-managed waiting times, in turn, positively influence patient experience, particularly perceptions of responsiveness, fairness, and care quality. At the same time, service design can directly enhance patient experience by improving communication, interaction quality, and emotional support during service encounters. Waiting time is therefore positioned as both an operational outcome and an experiential mediator linking service design practices to patient experience outcomes.

2.2 Conceptual Framework

Healthcare services can be understood as complex service systems in which efficiency and patient experience emerge from the way service processes are designed and enacted across multiple touchpoints. Within this perspective, service design provides a human-centred approach for organising people, processes, physical environments, and supporting technologies to improve both operational performance and experiential outcomes (Ostrom *et al.*, 2019; Rego *et al.*, 2022). This approach is particularly relevant for addressing prolonged waiting times and uneven patient experiences, which are closely linked to service design and coordination rather than to clinical quality alone (Palazzo *et al.*, 2024).

2.2.1 Service Design Practices and Patient Waiting Time

Service design practices including patient journey mapping, service blueprinting, workflow redesign, and co-creation with patients and frontline staff which enable healthcare organisations to visualise service processes holistically and identify bottlenecks that disrupt patient flow. By improving coordination across service touchpoints, service design can reduce both actual and perceived waiting times (Rego *et al.*, 2022; Palazzo *et al.*, 2024). Prior studies indicate that administrative delays, fragmented workflows, and unclear role allocation are key contributors to prolonged waiting times, underscoring the importance of deliberate service redesign (Ostrom *et al.*, 2019).

Ho1: Service design practices have a significant effect on reducing patient waiting time in healthcare facilities.

2.2.2 Patient Waiting Time and Patient Experience

Patient experience is shaped not only by clinical outcomes but also by how patients perceive time, communication, fairness, and responsiveness throughout the service journey (Wolf *et al.*, 2014). Waiting time therefore operates as both an efficiency indicator and a subjective experience that strongly influences patient satisfaction, trust, and emotional responses. Prolonged or poorly managed waiting times are consistently associated with negative evaluations of care quality, even when clinical services are adequate (Ostrom *et al.*, 2019).

Ho2: Patient waiting time has a significant effect on patient experience in healthcare services.

2.2.3 Direct Effects of Service Design on Patient Experience

Beyond its influence on waiting time, service design is expected to directly affect patient experience by improving interaction quality, communication, and emotional support during service encounters. Human-centred and co-creative approaches actively involve patients and frontline staff in shaping services, enabling healthcare organisations to align service delivery more closely with patient needs and expectations (Frow *et al.*, 2016; Palazzo *et al.*, 2024).

Through clearer service pathways and improved information flow, service design can enhance patient experience independently of measurable reductions in waiting time.

H₀₃: Service design practices have a direct and significant effect on patient experience in healthcare services.

2.3.4 Mediating Role of Patient Waiting Time

Integrating these relationships, the framework positions patient waiting time as a mediating mechanism through which service design practices influence patient experience. By reducing inefficiencies and improving patient flow, service design lowers waiting time, which in turn enhances patient experience. At the same time, service design also improves experiential outcomes directly through improved communication and co-created service encounters, reflecting the interdependence of efficiency and experience (Rego *et al.*, 2022; Ostrom *et al.*, 2019).

H₀₄: Patient waiting time mediates the relationship between service design practices and patient experience.

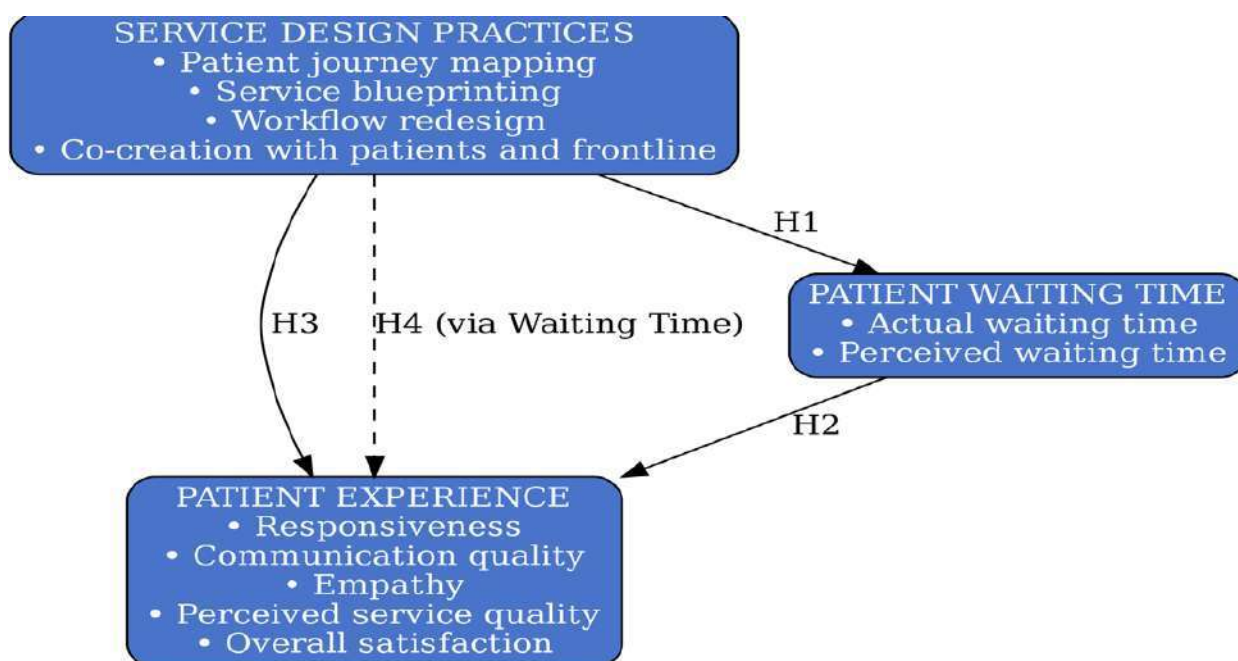


Figure 1
Conceptual Framework

III. METHODOLOGY

3.1 Research Philosophy and Approach

This study is grounded in a positivist research philosophy, which assumes that social phenomena can be objectively observed, measured, and analysed using empirical data and statistical techniques (Hair *et al.*, 2022). Positivism is appropriate for testing theoretically derived relationships and producing generalisable findings. Consistent with this stance, the study adopts a quantitative, deductive approach, enabling empirical testing of hypotheses derived from service design theory, patient experience theory, and value co-creation logic using survey data (Hair *et al.*, 2022).

3.2 Research Design and Area of Study

A descriptive and explanatory cross-sectional research design was employed. The descriptive component captures the current state of service design practices, patient waiting time, and patient experience, while the explanatory component examines causal relationships among these variables (Sekaran & Bougie, 2019). Data were collected at a single point in time from patients attending primary healthcare facilities in major urban centres in Tanzania (Arusha, Dodoma, Dar es Salaam, Mbeya, and Mwanza). These cities were selected due to their high patient volumes and persistent challenges related to waiting times and service delivery efficiency. Primary healthcare facilities were chosen because they serve as the first point of contact for most patients and strongly shape overall patient experience.

3.3 Population and Sampling

The target population comprised patients receiving services at selected primary healthcare facilities in the five study cities during the data collection period. Patients were considered appropriate respondents because they directly experience service processes, waiting times, and staff interactions, enabling informed evaluation of service design outcomes and patient experience (Wolf *et al.*, 2014). Sample size determination followed established guidelines for multivariate analysis and structural equation modelling, which recommend a minimum of 10 observations per estimated parameter or at least 300 cases (Hair *et al.*, 2022). Accordingly, a target sample of 500 patients was considered sufficient to ensure statistical power and generalisability. However, only 462 (92.4%, response rate) was achieved in the field during data collection.

A multi-stage sampling strategy was applied. First, healthcare facilities were purposively selected based on patient volume and service scope. Second, systematic random sampling was used to select patients within facilities. Second, systematic random sampling was used to select patients within each facility. The sampling interval (*n*) was determined by dividing the estimated average daily outpatient attendance by the required number of respondents per facility, based on the allocated sample size. Accordingly, every *nth* exiting patient was invited to participate after a randomly selected starting point, a procedure that reduced selection bias while remaining feasible in busy healthcare environments (Sekaran & Bougie, 2019).

3.4 Variables and Measurement

The study examined three main constructs: service design practices, patient waiting time, and patient experience. All variables were measured using multi-item scales adapted from validated instruments in services marketing and healthcare research, with minor contextual modifications. Responses were captured using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree).

Table 1

Variables and Measurement

Variable	Measurement Indicators	Scale	Source
Service Design Practices	Journey clarity, workflow efficiency, staff–patient interaction design, co-creation opportunities	5-point Likert	Rego <i>et al.</i> (2022); Palazzo <i>et al.</i> (2024)
Patient Waiting Time	Perceived waiting duration, fairness of waiting, information during waiting	5-point Likert	Ostrom <i>et al.</i> (2019); Wolf <i>et al.</i> (2022)
Patient Experience	Responsiveness, communication quality, empathy, perceived service quality, overall satisfaction	5-point Likert	Wolf <i>et al.</i> (2014); Ostrom <i>et al.</i> (2019)

3.5 Data Collection

Primary data were collected using a structured questionnaire administered primarily in Swahili, the national language and the most familiar medium for respondents. The original questionnaire was developed in English and translated into Swahili using a forward–backward translation procedure to ensure semantic and conceptual equivalence. Discrepancies were resolved through consensus among bilingual experts. Where necessary, trained research assistants conducted face-to-face administration for respondents with limited literacy. This approach enhanced inclusivity and minimised recall bias by capturing responses immediately after service encounters (Sekaran & Bougie, 2019).

3.6 Validity and Reliability

Content validity was ensured by adapting items from established scales and seeking expert review from healthcare management and services marketing scholars. Construct validity was assessed using confirmatory factor analysis to examine convergent and discriminant validity, while reliability was evaluated using Cronbach's alpha and composite reliability, with values of 0.70 or above considered acceptable (Hair *et al.*, 2022). A pilot study involving approximately 30 patients was conducted to refine item wording and improve clarity.

3.7 Data Analysis

With the aid of SmartPLS, data were analysed using descriptive statistics summarised respondent characteristics and key variables. Structural equation modelling (SEM) was employed to test the hypothesised relationships among service design practices, patient waiting time, and patient experience, including the mediating effect of waiting time. SEM was selected because it enables simultaneous estimation of multiple relationships while accounting for measurement error (Hair *et al.*, 2022).



3.8 Ethical Considerations

Ethical approval was obtained from the relevant institutional ethics review board prior to data collection, and permission was secured from facility management in each study location. Participation was voluntary, informed consent was obtained from all respondents, and confidentiality and anonymity were assured. No personal identifiers were collected, and the study adhered to international ethical principles for health and social science research.

IV. FINDINGS & DISCUSSION

4.1 Description of the Sample

Although the study initially aimed to recruit 500 respondents, 462 completed questionnaires were successfully obtained i.e. 92.4% of response rate. This final sample size was sufficient to support robust statistical analysis and met established requirements for the analytical techniques employed. Data were collected from 462 patients attending primary healthcare facilities in Arusha (18.6%), Dodoma (16.9%), Dar es Salaam (27.7%), Mbeya (17.3%), and Mwanza (19.5%). Females constituted 57.4% of respondents, reflecting utilisation patterns reported in Tanzanian primary healthcare facilities. The majority of respondents (61.2%) were aged between 25 and 44 years, consistent with outpatient attendance trends documented in urban Tanzania. Approximately 68% of respondents reported visiting the facility more than twice in the previous six months, suggesting familiarity with service processes.

Table 2

Descriptive Profile of Respondents (N = 462)

Characteristic	Category	Frequency	Percentage
City of healthcare facility	Arusha	86	18.6
	Dodoma	78	16.9
	Dar es Salaam	128	27.7
	Mbeya	80	17.3
	Mwanza	90	19.5
	Total	462	100.0
Gender	Male	197	42.6
	Female	265	57.4
	Total	462	100.0
Age group (years)	Below 25	64	13.9
	25–34	143	31.0
	35–44	140	30.3
	45–54	72	15.6
	55 and above	43	9.2
	Total	462	100.0
Education level	No formal education	58	12.6
	Primary education	147	31.8
	Secondary education	168	36.4
	College/University	89	19.3
	Total	462	100.0
Frequency of facility visits (past 6 months)	First visit	148	32.0
	2–3 visits	191	41.3
	More than 3 visits	123	26.7
	Total	462	100.0

4.1.1 Measurement Model Assessment

The measurement model was assessed for reliability and validity prior to hypothesis testing.

Table 3

Reliability and Convergent Validity

Construct	Cronbach's α	Composite Reliability	AVE
Service Design Practices	0.89	0.91	0.67
Patient Waiting Time	0.86	0.88	0.64
Patient Experience	0.92	0.94	0.70

All constructs exceeded recommended thresholds ($\alpha > 0.70$; CR > 0.70 ; AVE > 0.50), indicating satisfactory internal consistency and convergent validity. Discriminant validity was confirmed using the Fornell–Larcker criterion, with each construct's square root of AVE exceeding inter-construct correlations.

4.2 Structural Model and Hypotheses Testing

Structural Equation Modelling (PLS-SEM) was used to test the hypothesised relationships. In testing hypothesis one (H₁), the results in Table 4 show that, service design practices had a significant negative effect on patient waiting time ($\beta = -0.46$, $t = 9.18$, $p < 0.001$). These results indicate that, better-designed service processes were associated with shorter waiting times. Furthermore, the results of hypothesis two (H₂) reveal that, patient waiting time had a significant negative effect on patient experience ($\beta = -0.39$, $t = 7.64$, $p < 0.001$). This suggests that, longer waiting times substantially reduced patients' perceptions of service quality, responsiveness, and satisfaction. Moreover, results of hypothesis three (H₃) disclose that, service design practices had a direct positive effect on patient experience ($\beta = 0.41$, $t = 8.02$, $p < 0.001$), even after accounting for waiting time. In the hypothesis four (H₄) which was mediating role of patient waiting time, bootstrapping analysis confirmed that patient waiting time partially mediates the relationship between service design practices and patient experience (indirect effect $\beta = 0.18$, $p < 0.001$). The direct path remained significant, indicating partial mediation.

Table 2

Summary of Hypotheses Testing

Hypothesis	Path	β	p-value	Result
H1	Service Design $\rightarrow$ Waiting Time	-0.46	<0.001	Supported
H2	Waiting Time $\rightarrow$ Patient Experience	-0.39	<0.001	Supported
H3	Service Design $\rightarrow$ Patient Experience	0.41	<0.001	Supported
H4	Mediation via Waiting Time	0.18	<0.001	Supported

Generally, the model explained 42% of the variance in patient waiting time and 58% of the variance in patient experience, indicating strong explanatory power for a services marketing study in a public healthcare context.

4.2.1 Service Design–Based Framework Integrating Operational Efficiency and Patient Experience

This figure presents a service design–based framework derived from the study's empirical findings. Service design practices are positioned as the primary driver of both operational efficiency and patient experience, reflecting their significant effects on patient waiting time ($\beta = -0.46$, $p < 0.001$) and patient experience ($\beta = 0.41$, $p < 0.001$). Patient waiting time occupies a central mediating role, linking service design practices to patient experience through its strong negative effect on experiential outcomes ($\beta = -0.39$, $p < 0.001$) and its partial mediation of the service design–experience relationship (indirect effect $\beta = 0.18$, $p < 0.001$). Together, the relationships illustrate how service design simultaneously reduces waiting times and enhances patient experience, integrating efficiency and human-centred care within Tanzanian primary healthcare facilities.

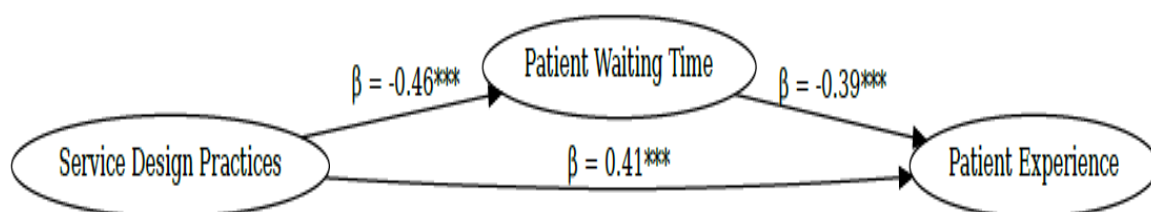


Figure 2

Service Design–Based Framework Integrating Operational Efficiency and Patient Experience

4.3 Discussion

4.3.1 Service Design and Waiting Time Reduction

The findings demonstrate that service design practices significantly reduce patient waiting times in Tanzanian primary healthcare facilities. This result aligns closely with empirical evidence from Tanzania showing that workflow



reorganisation, queue management, and role clarification reduce outpatient delays (Mwanswila *et al.*, 2024; Mollel & Mwanswila, 2024). The magnitude of the effect observed in this study suggests that waiting time challenges in Tanzania are not solely a function of resource shortages, but are also deeply rooted in how services are designed and coordinated. These results extend earlier Tanzanian studies that focused primarily on technical or organisational interventions by showing that service design provides an integrative framework for addressing multiple inefficiencies simultaneously. This supports the argument that redesigning patient journeys and service touchpoints is a more sustainable approach than isolated operational fixes.

4.3.2 Waiting Time as a Determinant of Patient Experience

Consistent with prior Tanzanian and regional studies, waiting time emerged as a strong predictor of patient experience. Longer waiting times were associated with lower perceptions of responsiveness, communication quality, and overall satisfaction. This finding echoes results reported in district and municipal hospitals in Tanzania, where prolonged waits undermined patient trust and perceived quality of care (Venance, 2022; Chagula, 2025). From a services marketing perspective, this reinforces the view that waiting time is not merely an operational metric, but a core experiential attribute that shapes how patients evaluate service encounters. Poorly managed waiting erodes the perceived value of healthcare services, even when clinical outcomes are acceptable.

4.3.3 Direct Effects of Service Design on Patient Experience

Importantly, service design practices also had a direct positive effect on patient experience, independent of waiting time. This suggests that patients value not only shorter waits, but also how services are delivered, including clarity of information, empathy of staff, and perceived fairness of service processes. These findings resonate strongly with human-centred design evidence from rural Tanzania, where co-design approaches improved provider–client relationships and communication (Isangula *et al.*, 2024). This result extends patient satisfaction studies in Tanzania by demonstrating that improvements in experience do not depend exclusively on reducing delays. Instead, experience can be enhanced through better-designed interactions, clearer service pathways, and more responsive communication-key principles of service design.

4.3.4 Mediating Role of Waiting Time

The partial mediation effect confirms that patient waiting time is a key mechanism through which service design influences patient experience, but not the only one. This finding supports the integrated logic of the conceptual framework and aligns with service design theory, which posits that service outcomes emerge through both process efficiency and experiential quality. In practical terms, this means that healthcare managers should not treat waiting time reduction and patient experience improvement as separate initiatives. Rather, both outcomes should be pursued simultaneously through service design interventions that reshape patient journeys holistically.

4.3.5 Theoretical and Contextual Contributions

The study contributes to the Journal of Services Marketing literature in three key ways. First, it extends service design and customer experience theory into a low-resource public healthcare context, addressing a gap in empirical evidence from Sub-Saharan Africa. Second, it empirically demonstrates the mediating role of waiting time, reinforcing the link between operational efficiency and experiential outcomes. Third, it positions patients explicitly as service users, aligning healthcare research with core services marketing principles (Ayimbillah *et al.*, 2011).

From a theoretical perspective, the study underscores the importance of integrating operational efficiency and patient experience within a unified service design framework. Future research should build on this approach by examining how service design practices interact with contextual factors such as organisational culture, leadership, and technological infrastructure. Longitudinal and mixed-method studies would be particularly valuable for assessing how design-led interventions evolve over time and for capturing the dynamic interplay between efficiency and experience in healthcare services.



V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study makes distinct theoretical and practical contributions by demonstrating how service design functions as an integrative mechanism for simultaneously addressing waiting times and patient experience in low-resource primary healthcare settings. Conceptually, the findings advance service design and patient experience theories by empirically confirming that waiting time operates not merely as an operational variable but as a mediating service design outcome that shapes how value is perceived and co-created during healthcare encounters. By situating this relationship within a Tanzanian public healthcare context, the study extends predominantly high-income country-based service design scholarship into an under-examined institutional and resource-constrained environment.

From a services marketing and value co-creation perspective, the study contributes new empirical evidence showing that efficiency and experience are not competing objectives but mutually reinforcing outcomes of intentional service configuration. This insight refines existing theory by illustrating how patient experience in constrained systems is strongly influenced by the design of service touchpoints, communication practices, and patient flow logic, rather than by throughput speed alone. In doing so, the study offers a context-sensitive theoretical extension of service design principles applicable to public sector services in emerging economies.

Practically, the study provides actionable guidance for healthcare managers and policymakers operating under severe capacity and funding limitations. The findings demonstrate that low-cost, design-oriented interventions such as restructuring patient journeys, clarifying service sequences, and engaging frontline staff and patients in co-design can yield meaningful improvements without reliance on major infrastructural investments. This positions service design as a feasible, scalable, and policy-relevant strategy for strengthening primary healthcare performance in Tanzania and comparable low-resource settings. In general, the study's core contribution lies in reframing service design from a supplementary improvement tool to a strategic capability for public healthcare systems. By empirically linking service design to both operational efficiency and patient-centred value creation in a resource-constrained context, the research offers a transferable analytical lens for scholars and practitioners seeking sustainable solutions to persistent healthcare delivery challenges in emerging economies.

5.2 Recommendations

Based on the obtained findings, this study offers several practical and theoretical recommendations for improving healthcare service delivery in Tanzanian primary healthcare facilities through service design. From a managerial and practice perspective, healthcare managers should adopt service design as a strategic approach rather than treating waiting time reduction and patient experience improvement as separate initiatives. The evidence shows that inefficiencies are closely tied to how services are designed and coordinated; therefore, managers should prioritise holistic redesign of patient journeys across key service touchpoints, including registration, consultation, and pharmacy services. Practical actions such as workflow reorganisation, clearer task allocation among staff, and improved sequencing of service activities can yield meaningful reductions in waiting times without requiring substantial additional resources.

In addition, healthcare facilities should strengthen communication during waiting periods, as patient experience is shaped not only by the length of waiting but also by how waiting is perceived. Providing timely information about expected waiting times, service procedures, and delays can reduce uncertainty and enhance perceptions of fairness and responsiveness. Training frontline staff in patient-centred communication and empathetic interaction is therefore critical for improving experiential outcomes alongside operational efficiency.

The findings further highlight the value of human-centred and participatory service design practices. Healthcare managers are encouraged to actively involve patients and frontline staff in co-design processes, such as feedback workshops, journey mapping exercises, and small-scale service prototyping. These approaches help surface design-related bottlenecks that may be invisible to administrators and enable the development of solutions that are better aligned with patients' lived experiences and staff capabilities. Given resource constraints in Tanzanian primary healthcare settings, such low-cost, participatory interventions offer a practical and sustainable pathway for service improvement.

At the policy level, the study recommends integrating service design principles into ongoing health system reforms and digital health initiatives. Policymakers should support the adoption of design-led approaches by incorporating patient experience metrics alongside traditional efficiency indicators in performance monitoring frameworks. Investments in basic digital tools, such as appointment scheduling systems and queue management technologies, should be complemented by attention to service design and user experience to ensure that technological solutions translate into meaningful improvements for patients. Largely, these recommendations emphasise that improving waiting times and patient experience in Tanzanian primary healthcare facilities requires a shift from isolated operational fixes toward deliberate, human-centred service design, offering a more sustainable and contextually appropriate pathway for enhancing healthcare service performance.



Declaration of Interest

The author declares that he does not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Labour rights and corporate accountability in Zambia: Evidence from corporate governance practices

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ABSTRACT

This study examined the extent to which labour rights are integrated into corporate governance and business practices in Zambia, with particular attention paid to how organisational policy commitments translate into operational accountability. Guided by stakeholder theory and accountability theory, the study conceptualised labour rights as a core governance obligation rather than a discretionary corporate social responsibility function. The research was motivated by persistent labour rights violations in high-risk sectors, such as mining, agriculture, construction, and manufacturing, despite the existence of national labour legislation and international human rights frameworks. A convergent mixed-methods research design was employed. The target population consisted of employees and managers in medium-to-large enterprises operating within the identified sectors, as well as labour inspectors, trade union representatives, civil society actors, and government officials involved in labour governance. Quantitative data were collected through structured questionnaires administered to 336 employees and managers, selected using stratified random sampling based on sectoral representation. Qualitative data was generated from 32 purposefully selected key informants to capture institutional, regulatory, and experiential perspectives on labour rights enforcement. Quantitative data were analysed using descriptive statistics, Pearson correlation, and logistic regression in SPSS to assess the relationship between governance mechanisms and labour rights violations. Qualitative interview data was thematically analysed using NVivo, following an inductive coding approach. The findings revealed that only a minority of firms fully integrate labour rights into governance structures, with most demonstrating minimal to moderate integration. Qualitative results highlighted systemic challenges, including informal employment practices, weak enforcement capacity, limited rights awareness, a fear of retaliation, ineffective grievance mechanisms, and limited board-level oversight of labour issues. The study concludes that enforcement deficits and reliance on voluntary accountability frameworks, not policy gaps, drive labour rights failures in Zambia. It recommends mandatory human rights due diligence, strengthened labour inspection capacity, accessible grievance and remedy mechanisms, and the formalisation of employment relationships to enhance corporate accountability.

Keywords: Accountability, Corporate Governance, Due Diligence, Enforcement, Informality, Labour Rights

I. INTRODUCTION

Conversations around the globe relating to business and human rights started to include the idea that companies have responsibilities to the environments in which they operate and the fundamental labour rights. This was captured with the UN Guiding Principles on Business and Human Rights (UNGP) simply explaining that, while businesses respect human rights, States must enact and enforce laws that protect those rights (United Nations Human Rights Council, 2011). To Ruggie (2011), the United Nations Guiding Principles on Business and Human Rights (UNGPs) marked an important shift in the world from voluntary corporate social responsibility to mandatory accountability, while Chirwa (2020) shared the same sentiment, arguing that with the UNGP, companies could no longer rely on charitable activities to justify their social responsibility. Despite this, research showed that the direct incorporation of labour rights into the governance of corporations, especially in the Global South where there are more pronounced business regulatory capture and less regulatory scrutiny, is still shallow (Abe, 2022). This situation highlights the need for more in-depth, country-level research on the relationship between corporate governance and human rights.

In sub-Saharan Africa, countries whose economies are heavily reliant on natural resources observed an increased risk of corporate-related labour exploitations due to weak governance, and a foreign investment focus on the extractive economic sectors. It was within such a circumstance where Hamann et al (2020) described the tendency of



firms to adopt compliance corporate governance frameworks of a risk averse and siloed nature, only fitting labour rights within governance frameworks on the periphery of corporate risk. In the same line, Khojastehpour and Jamali (2020) argued that multinational enterprises working in emerging markets and disconnected from upper tier institutional investors, strategically complied with governance and human rights frameworks in what is called thin compliance, only to respond to institutional demands of the global market. These two perspectives cover the absence of corporate governance frameworks that incorporate labour rights and the indifferent arrangements of corporate policies relative to the rights of the employees.

In the work of Banerjee (2008), the exploitation of labour was framed within the ethical business discourse through the veil of corporate social responsibility. The tensions around exploitation and governance within the phrase “policy to practice” summarizes the unseen value of the work in the above writings. Zambia provides a compelling context to interrogate these questions. While the country also incorporated the Employment Code Act, the Human Rights Commission of Zambia notes continued investigations into sustained labour rights violations in the mining, agriculture, and construction sectors, identified nationally as high-risk sectors. Amnesty International (2023) stated there were statutory protections, but the continued environment of discrimination and unsafe conditions, along with the continued incidence of late payment of wages, indicated that the protections were ineffective. International Labour Organization, (2015) and Scherer & Palazzo, (2011) articulated the labour informalization by corporations as a strategy to evade full liability and to undermine workers' bargaining power. The International Trade Union Confederation [ITUC] (2024) also characterized the environment for labour governance in Zambia as poor in the scales of freedom of association and retaliation, and weak oversight, especially in enforcement, across the board. It was unsustainable to expect that the enforcement of the law would protect workers' rights when there was deficient corporate governance that neglected to integrate labour standards.

Publishing litigation documents and investigative articles pointed out even more failures in the governance of corporations. As an example, Business and Human Rights Resource Centre (2024) discussed the Kabwe mining companies' lack of proper environmental and social impact assessments, which led to severe exposure to lead toxicity for workers and surrounding communities. Companies' inadequate environmental and social impact assessments led to extreme lead toxicity risks for employees and the surrounding communities. Abe (2022) also notes that despite the presence of ESG (environmental, social and governance) reporting tools in Zambia, corporate performance is still inconsistent and unaccountable. Political economy perspectives have also attempted to address these gaps in compliance. Burgis (2015) offered an example of how Africa's multinational extractive corporations were politically shielded from the compliance obligations. Similarly, International Labour Organization, (2021) explained how agricultural firms avoided compliance with labour regulations by using informal contracts and verbal agreements. It was these governance gaps rather than missing regulations that caused the rights abuses.

Cross-border jurisprudence makes a stronger case for capitalism to ‘include’ labour rights vis-a-vis corporate governance. In *Lungowe v. Vedanta Resources plc*, the court held that a parent company could be liable for a human rights violation for a subsidiary company in Zambia (Abe, 2022). Choudhury (2023) suggests that, in this instance, the court acknowledged that, for a company violation of oversight, ‘governance’ failures are also applicable which expands the scope of due diligence a company is expected to take to mitigate the risk of labour and environmental abuse. Peters et al. (2020) argued that this and the similar cases constitute a legal evolution concerning the intersection of private and public law for corporate accountability and, thus, gives rise to the notion that, in cases of weak domestic enforcement, governance failures could be resolved through transnational litigation.

Information and evidence from the study reflect that the incorporation of labour rights into corporate governance systems in Zambia remains incomplete and inconsistent. Within the quantitative survey data, only 21.3% of respondents stated that their organization, at least in part, fully integrated labour rights into governance structures, while 50.5% responded that it was at best only partially and minimally integrated. 32 qualitative key informant interviews that were treated as case studies specifically sought to understand the low level of integration. For many workers and civil society members describing corporate internal processes, it was as if there was only “paper compliance” and that “CSR was only a compliance formality.” Scherer and Palazzo (2011) critique that CSR has turned into a context of legitimacy for circulation, rather than a transformative instrument for internal organizational change. Adekola and Clelland (2020) also elucidate that community engagement and empowerment initiatives in form and substance, at best, resulted merely in symbolic shifts. Together, these findings highlight a governance and labour rights provision chasm.

1.1 Statement of the Problem

Even though Zambia has established corporate governance frameworks and comprehensive labour laws, labour rights breaches are nonetheless common, especially in high-risk industries including manufacturing, construction, mining, and agriculture. Unsafe working conditions, informal employment arrangements, unpaid or delayed wages, discrimination, and inadequate grievance procedures in corporate workplaces are still documented in reports by national

and international human rights organisations (Amnesty International, 2023; International Trade Union Confederation, 2024).

The failure to effectively incorporate labour rights into corporate governance and operational decision-making processes is the fundamental issue, not the lack of legal standards or corporate policy commitments. Instead of being enforceable governance duties subject to board monitoring, internal accountability mechanisms, and regulatory inspection, labour standards are often viewed in practice as peripheral compliance or reputational issues (Abe, 2022).

The effectiveness of current laws is further undermined by the prevalence of informal working agreements, weak labour inspection mechanisms, and worker fear of retaliation. Because of this governance vacuum, businesses are able to uphold their legal commitments to labour standards while continuing to engage in behaviours that expose workers to exploitation and prevent them from effectively accessing remedies. Voluntary corporate governance and CSR frameworks have not improved labour outcomes in the absence of strong enforcement and internal accountability mechanisms. Therefore, empirical, context-specific research is required to investigate how labour rights are integrated into corporate governance in Zambia, evaluate the efficacy of current governance mechanisms, and pinpoint institutional and structural obstacles that sustain labour rights violations.

1.2 Research Objectives

1. Assess the extent to which companies in Zambia integrate labour rights considerations into their corporate governance structures and operational decision-making processes.
2. Examine the effectiveness of existing corporate governance mechanisms in protecting labour rights within high-risk sectors such as mining, agriculture, construction, and manufacturing.
3. Analyse the role of enforcement institutions, including labour inspectorates and regulatory bodies, in ensuring corporate compliance with labour rights standards.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Stakeholder Theory and Accountability Theory

Stakeholder theory explains how firms' obligations concerning employee rights transcend the value of the shareholder. As the theory explains, corporations owe duties to their employees, the communities, the government, and society, all of whom are affected by the company (Freeman et al., 2020). This perspective considers employee rights as governance obligations that must be reflected in the course of decision-making. Newer works document that, in the absence of the means to impose and institutionalize governance in such a way that the interests of employees could affect the behaviour of the firm, stakeholder-governance makes sense. In many developing countries, employees are excluded from real participation in governance, thus the symbolic nature of stakeholder governance (Abe, 2022). In the case of accountability theory, the absence of enforcement makes the theory without virtue. While de Boer (2023) argues that accountability entails supervision, transparency, and punishment for the breaches, these are the features that the rules of the labour governance lack. In these of labour governance, the present thesis demonstrates that it only the absence of rules that makes the stakeholder and accountability theories of the reason the absence of sustained governance and corporate commitment that justifies the integration of employee rights.

The shift from voluntary corporate responsibility to coercive accountability can be attributed to business and human rights governance. The UN Guiding Principles on Business and Human Rights state that while corporations have the responsibility to mitigate the impact of business on human rights, it is the state that regulates and enforces such protections (United Nations Human Rights Council, 2011). With this standpoint, corporate responsibility transformed from self-governance to a governance mandate. In situations of weak state enforcement, Scherer and Palazzo (2011) argue this transformed corporations into political actors with quasi-governance powers. Critics, however, note that while this is a theoretically advanced position, firms often use the language of human rights without effecting the desired changes in the social relations of dominations and the subsequent organizational practices (Banerjee, 2008). In Choudhury's (2023) view, without any legislative backing, corporations may comply with governance requirements while keeping in place their lack of protection over their workers. In the theoretical context of this situation, the frontier of governance is the accountability of the framework, not the mere adoption. This study perceives the incorporation of labour rights as a governance outcome advanced by the enforcement, monitoring, and institutions, not merely the corporate discourse.

2.2 Empirical Review

Research from both developed and emerging economies demonstrates a lack of consistency in incorporating labour rights into corporate governance frameworks. After all, multinationals based in emerging economies tend to comply with labour guidelines, especially when patchy or no labour regulations are in place (Khojastehpour & Jamali,

2020). In the corporate governance frameworks in Africa, most of the time, the dominant concerns are risk management and investor relations, rather than the concern with the employees (Abe, 2022). In Southern Africa, the dominant narrative is that the CSR policies that firms adopt are primarily for market purposes rather than for the protection of employee rights (Hamann *et al.*, 2020). In Zambia, a similar scenario exists where there is a body of law that provides for a certain level of labour rights, but there is no enforcement of the law in most industries (Amnesty International, 2023). Given the above evidence, it is reasonable to conclude that governance systems continue to lock out labour rights from the core functions of the business and therefore, increase the distance between the normative promises and the actual conditions in the workplace. With respect to the above, the literature concurs that it is the absence of an internal system that holds actors accountable for compliance, rather than an absence of a system of regulations.

The role of informality in weakening labour governance can be shown through the study of labour-intensive and resource-dependent economies. Agricultural and mining firms, to cut costs and avoid oversight, use informal arrangements, sub-contracting, and temporary positions to avoid formal contracts (International Labour Organization, 2021). Despite the presence of codes of conduct, civil surveys in Zambian mining report informal employment and exploitative conditions (Jesuit Centre for Theological Reflection, 2021). International Labour Organization, (2015) and Scherer & Palazzo, (2011) states that informality in regions with inadequate enforcement of labour laws is primarily aimed at reducing legal exposure and weakening the bargaining power of employees. The unregulated environments that bordering economies provide, combined with the insufficiently staffed labour inspectorates, encourages firms to operate with a low level of compliance (International Labour Organization, 2019). Within governance research, the power asymmetry and positioning of the enterprise, labour, and state is what defines the scope of the articulation of labour rights. This underscores the need for governance and corporate accountability in Zambian workplaces.

Recent empirical studies show limitations of voluntary governance. Firms are disclosing increasingly labour and human rights policies, but actual practices rarely match these policies (Hess, 2019). The first studies on the (possible) implementation of the European due diligence regulations show that once the frameworks are 'on the books', they stimulate firms to tackle the labour aspects of their supply chains (Koos, 2022). Still, in the case of the Global South, voluntary accountability frameworks are non-transparent and poorly enforced (de Boer, 2023). Research on Africa shows that corporate grievance procedures are generally lacking or ineffectual in reality, frequently compromised by employees' fear of reprisals and lax enforcement (Business & Human Rights Resource Centre, 2022; International Trade Union Confederation, 2021). All these studies illustrate the impact that lack of enforcement or regulation has on the outcomes in the world of work. Hence, this study positions the worker rights challenges in Zambia within the empirical discussions on governance-based accountability frameworks.

III. METHODOLOGY

3.1 Research Design

A convergent mixed-methods design was used in this study. As stated by Creswell and Plano Clark (2018), mixed-method designs can be used under complex situations when social phenomenon cannot be handled by a single method. This captured the integration of labour rights they lived experiences and the institutional contexts that explained the figures. As stated by Bryman (2016), the credibility of mixed-methods research lies in the diverse methods used to authenticate a dataset. This is a worthy asset and is reiterated by Denzin (2012) whereby methodological triangulation of different datasets improves a study's rigor by minimising the disadvantages of using mono-methods. Here, the quantitative data captured the several levels of integration of labour rights within the governance sectors, and the qualitative data described the governance frameworks that facilitated or impeded compliance. Hence, the primary objective of the study, and the convergence design were purposeful aligned, to assess the extent to which labour rights were incorporated into corporate governance and operational decision-making frameworks in Zambia. This enriched the qualitative and statistical data and confirmed the integration offered a strong explanatory foundation while improving the strength of inference. The design made it easier to collect data at the same time. This helped save time and improved the coherence across different strands of research.

3.2 Research Philosophy and Paradigm

In terms of research philosophy, the study was underpinned on pragmatism. Pragmatism emphasises flexibility and using whichever approaches that best respond to the research question. In a more recent work, Patton (2015) states that pragmatic research regards the outcome as a more important consideration than the engagement on theoretical purism. In addition, Kombo and Tromp (2006) also alluded that pragmatism is best suited when dealing with complicated and real-life problem situations as it encompasses the quantitative and qualitative aspects with equal relevance. The choice of pragmatism was informed on the study's focus on actionable knowledge as modelled to policy reform and practice within the private sector. This position is different from the stance of positivism which views reality to only observable and measurable variables and constructivism which majorly relies on subjective interpretations

(Miles & Huberman, 1994). The choice of pragmatism was an integrative position, which was required for the study on the domain of labour governance with respects to the inter-legal orders, organisational behaviour and the human element. This is the reason why the paradigm justified the surveys to assess the extent of the integration of labour rights and the interviews to portray the regulatory gaps and the power dynamics embedded in the firms. The paradigm achieved the aim of the article which was to provide empirical evidence for policy reform and practice on corporate accountability.

3.3 Study Population

Zambia's diverse governance of labour rights was illustrated using three main groups of participants. The survey spanned employees from the mining, agriculture, construction, and manufacturing sectors. These sectors are especially vulnerable to violations of labour rights as they are highly dependent on informal and subcontracted labour. These employees narrated their workplace environments, employment policies, and complaint/recourse mechanisms. The second group was comprised of labour inspectors and officials from the Ministry of Labour and Social Security, civil society, and trade union officials. These participants suggested the absence of a corporate labour rights enforcement and monitoring accountability prism from regulatory, enforcement, and advocacy. The last group was the participants from the Ministry of Labour and Social Security, Civil Society, and Trade Union officials. The participants of this group were highly relevant for the construction of the enforcement and advocacy confluence. The three groups created a prism to examine the Labour rights enforcement as experienced by the workers, the enforcement institutions, and the business decision makers on governance and compliance.

3.4 Sampling Strategy

Employing a multi-stage sampling approach, I first selected certain sectors which had reported violations of labour rights. According to the latest report of the Human Rights Commission of Zambia, the mining, construction, agriculture and manufacturing sectors have persistent violations of labour rights. I intended to purposively sample the sectors to make sure I was carrying out the research in contexts where violations of labour rights were most probable. Within each sector I used a combination of stratified random sampling for the workers and purposive sampling for the institutional actors in each sector to choose the respondents. This was to ensure that the four sectors had equal representation while purposive selection guaranteed that the institutional participants had sufficient knowledge of the labour governance frameworks.

For the quantitative component, the sample size was determined using the Yamane formula:

$$n = \frac{N}{1 + Ne^2}$$

Where:

n = required sample size

N = estimated labour force within selected sectors ($\approx 2,100$ employees)

e = margin of error (0.05)

$$n = \frac{2100}{1 + 2100(0.05)^2}$$

$$n = \frac{2100}{1 + 5.25} \quad n = \frac{2100}{6.25} = 336$$

As per the planned sample size set at 336, we proportionately sampled employees from each of the sectors. Employees Across the sectors were randomly chosen to provide a balanced perspective on respondents' labour rights practices from a variety of sectors. Employees were randomly chosen from within their workstations, while the targeting of managers and governance compliance officials from the various stations was purposive to address the differentiated demands of their positions.

3.5 Data Collection Instruments

3.5.1 Questionnaire

Incorporating labour rights into business governance and operational practices is a key area of research. This was guided by the ILO (2022) recommendations for the use of structured measurement tools to assess the enforcement of labour rights. The instrument. Evaluated five dimensions: Statutory Labour Rights Compliance (Contracts, Wages, Working Hours). Health Safety Compliance. Grievance Mechanisms. Labour Rights Awareness. Corporate Governance and Reporting Standards. This data allowed for parametric statistical analysis, as respondents utilized a five– point Likert scale (1 = strongly disagree to 5 = strongly agree) to evaluate each statement.

3.5.2. Key Informant Interviews

Semi-structured interviews were conducted with 32 key informants, which included inspectors, union leaders and civil society organisations as well as government officials. Semi-structured interviews allow for a good balance of flexibility and specificity for examining a specific domain (Braun & Clarke, 2006). The interview guide focused on exploring: Enforcement practices, corporate behaviour regarding labour rights, Barriers to implementing rights in workplaces. This approach explained narratives relating to weak enforcement and fear of retaliation detailed in Chapter 5, as well as the challenges posed by inspections inadequately completed.

3.5.3 Document and Case Law Analysis

To assess the accountability of the corporation, reports and court litigation documents were reviewed. Chirwa (2020) argued the sideways evaluation of a court record helps in understanding the scope of potential rights claims. Relevant documents such as the report by Human Rights Watch in 2025 on lead poisoning in Kabwe and the landmark Lungowe v. Vedanta (2019) case which was the first to judicially enforce human rights due diligence. These also helped in empirical triangulation, highlighting the discord between legislation and practical protections.

3.6 Reliability and Validity

3.6.1 Reliability Analysis (SPSS)

Cronbach's alpha was used to check how reliable an instrument is. In 2011, Tavakol and Dennick discussed how to determine alpha, assess internal consistency, and check item congruence of a questionnaire. Results from the pilot study were analysed the responses in SPSS (n = 30):

$$\alpha = \frac{k}{k-1} \left(1 - \frac{\sum \sigma_i^2}{\sigma_t^2}\right)$$

Where:

k = number of items,

σ_i^2 = variance of each item,

σ_t^2 = total variance.

The reported value for the study was $\alpha = 0.842$ which reflects robust internal reliability that rest above the preferred value of 0.70 (Miles & Huberman, 1994).

3.6.2 Validity

Representatives from the Ministry of Labour and the union members reviewed and edited the record to verify precision and to account for any potential bias. Creswell & Plano Clark, (2018); Bryman, (2016) and Adom et al (2018) notes the importance of expert validation, whereby items are aligned to the theoretical constructs, thus improving credibility. Construct validity was further assessed through factor analysis.

3.7 Data Analysis Procedures

3.7.1 Quantitative Data Analysis

The analysis was conducted in SPSS, where the distribution and the integration of the remaining labour-rights data was captured through descriptive statistics. Inferential statistics was then applied: Analysing the association of the grievance mechanisms with the violations using Pearson correlation. Conducting logistic regression to analyse if grievance mechanisms predicted the violations of rights. Logistic regression model:

$$\ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X$$

Where **p** = probability of labour-rights violation, **X** = presence of grievance mechanism.

Regression output:

r = -0.41 (p < .01)

OR = 0.68

An odds ratio (OR) of **0.68** means that companies with grievance mechanisms were **32% less likely** to experience labour-rights violations:

$$(1 - 0.68) \times 100 = 32\%$$

This confirmed the predictive value of grievance systems, aligning with the central objective.

3.7.2 Qualitative Data Analysis (NVivo)

Interview transcripts were analysed thematically using NVivo. Braun and Clarke (2006) described thematic analysis as suitable for interpreting patterned meaning across datasets. The study applied an inductive coding approach, generating: 57 codes, which were grouped into 11 categories, collapsed into 3 overarching themes: weak enforcement, informal labour, and low awareness.

3.8 Ethical Considerations

Ethical clearance was gotten from Zambia's Ministry of Labour and one of the Ministry's partnered academic ethics boards. "All research needs to protect the dignity and the autonomy of the participants". (Cornwall & Nyamu-Musembi, 2004). Participation was voluntary and triggers of anonymity were numeric identifiers. Written informed consent was also achieved. No organisation or individual respondent was named.

IV. FINDINGS & DISCUSSION

4.1 Findings

To evaluate how governance practices affect the defence of workers' rights, this section presents findings on the relationship between corporate governance mechanisms (independent variables) and labour rights outcomes (dependent variable) in Zambia using both quantitative and qualitative data.

4.1.1 To companies in Zambia integrate labour rights considerations into their corporate governance and business practices

Table 1

Reports & Case Laws on Corporate Governance & Human Rights in Zambia

Title / Source	Type	Key Findings & Relevance
<i>Poisonous Profit: Lead Waste Mining and Children's Right to a Healthy Environment in Kabwe, Zambia</i> (Human Rights Watch, 2025)	Report	Found that mining companies in Kabwe allowed lead contamination to persist without full environmental impact assessments; weak compliance with environmental laws; lack of transparency; companies not engaging properly with communities.
<i>Environmental, Social & Governance Laws and Regulations Report 2025 Zambia</i> (ICLG)	Report	Reviews ESG regulatory context in Zambia; notes growing litigation risk for human rights & labour violations, but also gaps in corporate disclosure, transparency, enforcement, and corporate governance that integrates human rights.
<i>Corporate Governance Country Assessment: Zambia</i> (World Bank, 2012)	Report	Analysed corporate governance policy framework; noted poor minority shareholding protections, limited board oversight, weak stakeholder rights; suggested reforms to enhance transparency, board professionalism, and accountability to stakeholders (which could include human rights concerns).
<i>Living in a Parallel Universe: FQM versus Communities</i> (SARW / Civil Society report)	Report	Found that First Quantum Minerals' Kansanshi mine CSR programmes had limited impact for the surrounding communities; communities felt excluded, CSR was superficial; meaning corporate governance practices did not meaningfully integrate human rights or community concerns.
<i>In Mind Enterprises Limited & Others v Stripes Zambia Limited and Another</i> [2013] ZMHC 37	Case Law	Involves a High Court application (commercial registry) concerning orders of committal; though more about commercial law and compliance, it touches on obligations companies had under contracts/rules; could show how courts enforce corporate legal obligations.
<i>Lungowe v Vedanta Resources plc</i> [2019] (Abe, 2022)	Case Law	A parent company in UK held to duty of care regarding environmental damage caused by its Zambian subsidiary; shows how corporate governance (via parent-subsidiary relationships, oversight, policies) can be held to human rights standards.
<i>Zambia: Court grants permission to appeal lead poisoning class action against Anglo American</i> (BHRR, 2024)	Legal Case / Litigation Update	Class action by Kabwe residents alleging lead poisoning; companies being held accountable in court for environmental harm; reflects increasing judicial pressure for companies to integrate human rights/environmental safeguards.)
<i>Submission on Zambia to the Committee on the Rights of the Child</i> (Human Rights Watch, 2021)	Report / UN Mechanism Submission	Focused on child rights and effects of mining operations (waste, pollution) in Kabwe; noted that legal requirements (EIA, community consultation) were not being fully met or implemented; companies had failed to properly communicate risks to affected communities.

Human Rights Watch noted that Kabwe businesses had ineffective human rights integration within their operations. Moreover, businesses within the mining sector had also been described as negligent in the management of lead poisoning, as well as in the public health and environmental consequences of their operations. Their conduct on corporate governance and public health may be described as apathetic. Such findings would indicate that the civil governance frameworks and structures the corporation has in place poorly decouples civil rights and civic health standards and, consequently, public governance and control systems within the governance of high civic impact systems.

As outlined in The Environmental, Social and Governance Laws and Regulations Report – Zambia (ICLG, 2025), there has been some understanding and integration of portions of the ESG by companies, particularly the social and governance aspects. However, the integration of labour rights within corporate governance remains, as described by corporate executives, patchy. In that regard, the governance and control frameworks have poorly integrated the enforcement rights and opt-out clauses within the Employment Relations Act (ELRA). The implication remains that there is a need for governance and control frameworks to move from the opt-out system and include the integration of labour rights.

The World Bank Corporate Governance Country Assessments of 2012 reported that Zambia's corporate governance system provided minimal safeguards for stakeholders. This also includes people impacted by corporate activities concerning work, working conditions, and the rights of workers. Governance frameworks seemed to lack the enforcement mechanisms necessary for corporate governance structures to guarantee that the needs of labour, and the rights of labour, were incorporated on an ongoing basis into corporate decision-making. The absence of these governance frameworks had an adverse corporate effect on the incorporation of the rights of labour.

In the SARW report on First Quantum Minerals' Kansanshi mine, the critique stated that the community concerns were not adequately addressed through the corporate social responsibility activities provided by the company. Internal governance structures of the company were said to have failed to meaningfully include communities on the human rights and stakeholder engagement continuum of the decision-making processes, leading the communities to regard CSR more as a PR exercise. This indicated that the CSR activities formalized in business documentation failed to include human rights in any meaningful way.

In *Mind Enterprises Ltd v Stripes Zambia Ltd* [2013] represents the first integrated corporate commercial litigation case in Zambia. Zambian courts begun the process of incorporating accountability within the corporate landscape in Zambia, and for the first time, the Zambian courts implied the existence of 'governance' within the corporate landscape. This was astonishing, in the absence of compelling and direct references in the case depicting the neglect of 'rights' within the corporate realm. Although the implied 'governance' within the corporate landscape is intellectually interesting, the intersection of the enforcement of corporate 'governance' and the 'neglected' enforcement of 'rights' within the case is legally applicable but underdeveloped.

In the landmark UK Supreme Court case *Lungowe v Vedanta Resources plc* [2019], the 'governance' dimension of the relationship between the corporate entity and its human rights obligations as part of corporate governance expanded and was defined by the peculiarities of the case's parent-subsidary relationship. It was the first occasion a parent company was held liable for the environmental and human rights violations of its subsidiary. This illustrates that when local enforcement of human rights is lax or non-existent, a company is made to comply with international standards on human rights through litigation. In this case, the integration of international human rights enforcement into the company's governance paradigm is a niche case.

According to the Business & Human Rights Resource Centre (2024), the recent class action litigation brought on by the residents of Kabwe against Anglo American confirmed that litigation was one of the means for developing accountability for human rights violations. In this case, the corporate governance failure was rationally balancing the community health and environment protective business activities with the allegations of lead poisoning. This showed that the business had not fully integrated the rights, and the level of business practice then to the point where it necessitated judicial intervention to enforce it.

4.1.2 Employer has Integrated Rights related to Work into Business Practices

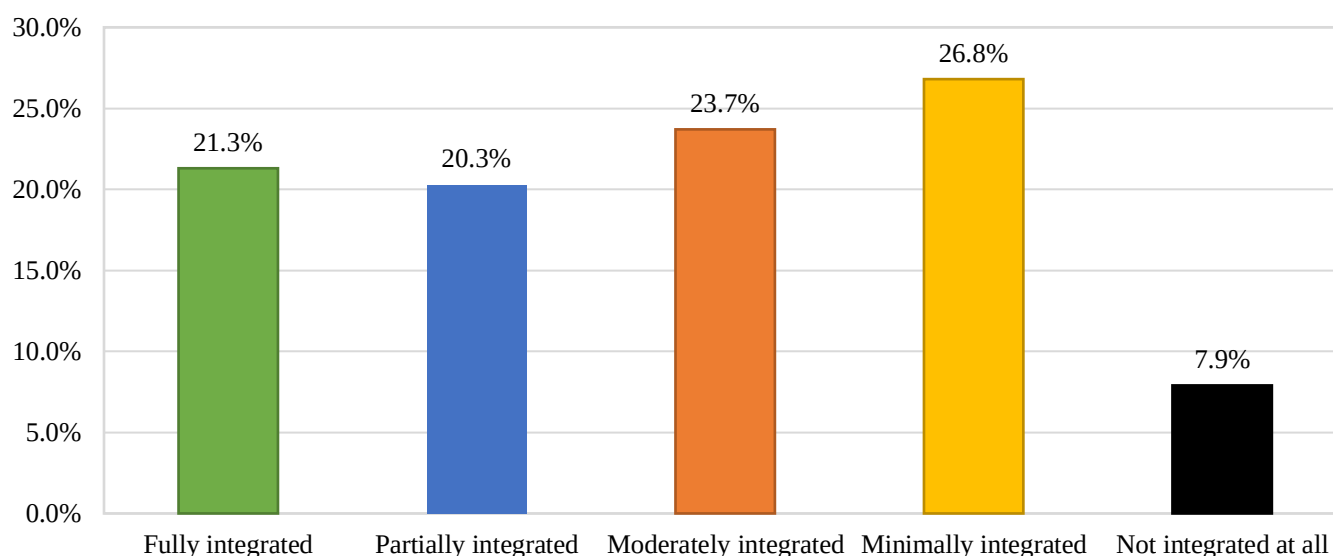


Figure 1
Companies Integrate Labour Rights Considerations into their Corporate Governance and Business Practices

These figures show that 26.8% of those questioned thought that the integration of labour rights into corporate governance and business practices in their field was 'very limited', suggesting that companies show little dedication to incorporating labour rights into their activities. 23.7% considered the integration to be 'moderately' incorporated. This suggests that some actions have been taken, but they are still far from complete. 21.3% of respondents perceived that companies have 'optimally' incorporated labour rights into their business practices, which indicates that some companies have taken considerable steps to achieve the target of convergence with labour rights. 20.3% of the respondents considered integration to be 'partially incorporated', and only 7.9% of respondents considered that there was 'no integration'. This illustrates that whilst there have been some advances, the gaps in the integration of labour rights into corporate governance and business practices persist within the sector.

The observed pattern correlates with documented evidence across the African continent that shows how, weak labour rights, tend to be treated more as managerial prerogatives than as legally binding elements of organisational governance (Abe, 2022). These findings also mirror the Zambian context, where legal protections are in place, yet violations are ongoing, in that empirical evidence suggests the complexity of turning legal frameworks into operational realities in workplaces (Amnesty International, 2023). Other studies, notably in Africa, Hamann et al, demonstrate that in resource rich regions, companies routinely adopt reputational and regulatory (i.e., risk) compliance approaches that are void of true responsibility to employees. The documented prevalence of minimal and partial integration in the findings correlates with the equally documented trend of informal employment as a means of reducing liability and diminishing employee voice (International Labour Organization, 2015; Scherer & Palazzo, 2011). International empirical studies in labour governance also characterise weak regulatory frameworks as typically reinforcing, where employers are left to sustain a state of ostensible compliance and avoid any meaningful change (ITUC, 2024). Collectively, these findings suggests that the problem in this case is not a lack of policies, but a lack of substantive integration of labour rights into the routines of organisational governance and the operational decision-making processes.

4.2 Qualitative Findings

Thirty-two key informants were conducted about experiences and perspectives concerning labour rights violations. This group included employees, labour union leaders, civil society, and government officials. The transcripts were coded and analysed using NVivo 12. Some of the participants most concerning issues included: enforcement, exploitation, informal labour, and lack of legal awareness. An inductive approach was applied, identifying emergent and closely related themes, and subsequently distilling them into broad descriptive categories that captured the essence across various sectors and groups. Data was extracted and analysed, using NVivo, the frequency of themes with matching sample quotations and analysed them through NVivo nodes.

Emergent Themes and Illustrative Quotes: From the interviews, three broad themes were created that encompassed the issues most significant to the participants. These were largely based on the feedback received from workers, inspectors, and civil society concerning the key and tangible issues surrounding enforcement of labour rights.

Theme: Low Awareness of Rights and Fear of Retaliation: Most participants discussed the relationship between the underreporting of violations and the lack of legal awareness and fear of dismissal and cited this as the reason most workers did not report violations. An NGO official from the Copperbelt (Interviewee 05, 14 March 2024) noted the following:

“Most workers don’t even know how to report abuse, and if they try, they get blacklisted.”

These themes help explain the patterns observed in the quantitative data as well as the patterns observed in the qualitative data.

4.2.1 Working Conditions and Rights Violations

Participants from all sectors mentioned exploitative working conditions. In the mining sector, sectorial respondents described lack of safety provisions and lack of basic safety equipment. One mining sector worker said:

“There are no helmets, no boots. If you complain, you lose your job.” (Participant 07, 14 March 2024).

Conversations within these sectors showed the use of informal contracts, undocumented child labour, and informal contracts during harvest seasons. As one of the farm workers:

“We work on verbal agreements. Children also help during harvest.” (Participant 12, 22 April 2024).

It’s not unusual for someone to not get paid on time or do irrelevant work. This was described by one construction labourer as simply:

“Sometimes we go months without pay, and there’s no one to report to.” (Participant 2, 21 April 2024).

Problems with working conditions and labour rights remain ongoing and vary by sector.

4.2.2 Perceptions of Legal Enforcement

During the interviews, some people questioned how effective the enforcement institutions really are. Some thought these institutions do not fulfil their responsibilities and are influenced by other people’s interests. One participant noted that:

“They just write reports. Nothing happens after inspections.” (Participant 8, 21 April 2024).

Another respondent stated:

“If the company has connections, no action is taken.” (Participant 10, 22 April 2024).

Other interviewees shared similar views regarding challenges that come with implementing labour standards based on the current enforcement strategies available.

4.2.3 Attitudes and Accountability of Corporations

A few of the people I interviewed mentioned that some businesses seem to prioritize profit over the protection of labour rights. A few of the interviewees from the same business entities described the disregard of legal and moral responsibilities as a combination of just disregarding financial overhead. One interview participant mentioned that:

“Companies know what’s right, but they do what suits their bottom line.” (Participant 1, 21 April 2024).

Lately, some businesses have been adopting CSR policies. Policies that have been provided are, however, poorly implemented. “Below the CSR policies, the efforts were seen to be shallow” stated one participant:

“The policy is there, but on the ground, it’s different.” (Participant 4, 21 April 2024).

These perspectives explain the fears people have on the gap between what businesses say and what happens within their work environment.

4.2.4 Systemic and Structural Gaps

As interviews were conducted, many participants pointed out the gaps in the legal awareness and legal protection gaps in the occupational world. Many respondents noted that workers did not seem to know their rights and were hesitant to speak up out of fear of reprisals. One stated that:

“Most workers don’t know their rights, and those who do are afraid to speak.” (Participant 11, 22 April 2024).

Some participants also mentioned the need for stronger institutional frameworks and more alignment between existing labour regulations and international standards. These issues were consistently raised through interviews with both workers and institutional stakeholders.

Table 2

Thematic Codebook from NVivo Analysis

Node (Theme)	Description
Weak Enforcement	Refers to inadequate follow-through on labour violations by inspectors and regulators.
Informal Labor	Covers practices such as lack of contracts, cash payments, and verbal agreements.
Lack of Awareness	Captures workers’ limited knowledge of their legal rights and complaint mechanisms.
Corporate Neglect	Addresses the failure of companies to implement internal Labour Rights compliance systems.

**Table 3***Sample Coded Interview Quotes (NVivo Nodes)*

Interview ID	Theme (Node)	Quote
Interview_03	Weak Enforcement	"They only come to inspect after someone gets seriously hurt."
Interview_07	Informal Labour	"I was hired without any contract; we just agreed verbally."
Interview_10	Lack of Awareness	"I don't know where to report when my rights are violated."

4.3 Discussion

4.3.1 Interpretation of Quantitative Evidence on the Level of Integration of Labour Rights into Corporate Governance

The extent to which Zambian firms have adopted Labour Rights governance shows considerable inequity. Out of the firms in the sample, only 21.3% are categorised as having governance structures that fully incorporate labour rights, yet most respondents seemed to rate the labour rights governance frameworks as only somewhat or moderately inclusive. The stance seems to resonate with what Hess (2019) commented, where there exists a human rights policy framework, but the value remains useless without a genuine positive change since the firm only seeks to reputation launder. Choudhury (2023) remarked the same scenario with human rights due diligence, where firms manage and avoid risk leaving the unprotected worker. The Human Rights Commission of Zambia report in 2022 has identified ongoing labour rights abuses most recently in the extractive and agricultural industries. This, along with the above, portrays the operational rights un-integration, where the respondents seem to contrast the perception of operational un-integration with their policy commitment. This suggests a lack of substantive enforcement.

4.3.2 Superficial Corporate Social Responsibility and Limited Accountability

Some companies promote Corporate Social Responsibility (CSR) branding to cover their negligence of substantial labour-rights. Banerjee (2008) argues that in resource-dependent economies, CSR rhetoric can deflect attention without altering detrimental organisational practices. Hamann et al. (2020) express similar concerns based on their review of mining firms in Africa, where elite capture and managerial discretion operate primarily to the detriment of the community and workers. Methven O'Brien et al. (2016) also shows that voluntary CSR and community engagements, as well as initiatives, remains legally unaccountable and therefore, firms can pretend compliance without meaningful genuine structural changes. This scholarship supports the case study presented in the findings, where CSR practices in First Quantum Minerals' operations were described as superficial and exclusionary. In this case, initiatives aimed at managing the company's reputation cannot compensate for the absence of enforceable labour rights. This indicates that CSR, in the absence of legal obligations, will primarily be a superficial effort that provides no protection to workers.

4.3.3 Weak Enforcement and Regulatory Capacity Constraints

Some participants mentioned weak labour inspection systems are so poorly managed that no action is taken on violations. International Labour Organization, (2019) describes situations in South Africa where inspectors are so poorly resourced that they cannot enforce compliance with labour rights. The International Labour Organization (2020) describes weak labour inspection systems in Eastern and Southern Africa where shallow workplace monitoring is a consequence of insufficient staffing and limited logistical resources. In his 2011 work, De Jonge reinforces the claim by detailing how, during resource booms, the weakening of state protective frameworks occurs because the state shifts its focus from the rights of workers to the prioritization of garnering investments. Findings of the study identify the scant enforcement of laws as the source of impunity, thus confirming that the absence of legislation cannot be the only explanation for rights at work being unprotected. It is the inability to regulate that poses the greatest challenge.

4.3.4 Informal Labour Practices and Evasion of Corporate Accountability

Research from this study suggests that informal practices such as verbal contracts, withholding wages, and child labour within agriculture persist. Busquet et al (2021) recognize weak supply-chain oversight and informality as core drivers of labour abuse, especially seasonal labour. Likewise, International Labour Organization, 2015 and Scherer & Palazzo, (2011) claims that firms in African countries circumvent formal obligations and use informality as a means of cost reduction. Hilson and Laing (2021) point out that in Ghana, informality helps companies avoid compliance and relax accountability as a form of evasion. Order and linkage found within these pieces and the present work strongly implies that in Zambia, the informality within the system is a tactic of management aimed at obscuring the exposure of the labourers and avoiding accountability, rather than a response to market demands.



4.3.5 Fear of Retaliation and Workers' Silence

Some interviewees said abuse would not be reported because of psychological coercion, concern for dismissal, and being blacklisted. Kandilige et al. (2023) documented similar findings involving exploitation of migrant domestic workers and their employment. Morris and Rickard (2019) showed how silence on harassment in global supply chains can be attributed to fear of retaliation. In one of their psychological analyses on non-compliance of the law, Khan et al. (2024) showed how punitive legal structures shape people's disengagement. The Zambian findings reflect this literature. It appears workers, in the absence of structural protective measures, are prevented from exercising their legal rights in a meaningful way.

4.3.6 Ineffectiveness of Voluntary Corporate Accountability Mechanisms

This subsection looks at how labour rights outcomes, such as reporting violations and access to remedies, are impacted by the strength or lack of voluntary corporate accountability systems as a governance-related independent variable. There were some inaccessibility and distrust to grievance mechanisms suggested by respondents to dispute settlement. Utting (2012) states there are structural biases in fully voluntary grievance mechanisms as companies fully control designing and executing the whole process. Looking at Canada, Abuhadba (2022) explains the voluntary compliance models are weaker because there are no legal obligations to compel companies to stop vicious behaviours. Marquis and the Worker-Driven Social Responsibility (CSR) network (2023) demonstrated that, in contrast to corporate-driven CSR, worker-driven accountability mechanisms achieve tangible results in reducing rights violation. So, findings mirror an international pattern: without mechanisms to enforce oversight, voluntary systems are insufficient to protect labour rights.

4.3.7 Weak Integration of Human-Rights Due Diligence into Corporate Governance

Without due-diligence procedures being statutory, integrated governance with the labour rights framework remains weak. García-Sánchez et al (2025) states that only when there are legal obligations do multinational enterprises adopt rights-based governance. This is not done ethically. In Nolan (2016), statutory guidance is supplied which shows that facilitating compliance and relieving interpretative ambiguity are both possible. In Germany, empirical research by Kolev-Schaefer and Neligan (2024) demonstrated that with the introduction of the human rights due-diligence law, oversight on labour risks within supply chains skyrocketed. This shows that shadow legal norms are still effective. Therefore, this study supports the findings from comparative research which states that, in the absence of legal commitments, the balance of labour rights due diligence remains discretionary and inadequate.

4.3.8 Governance Structures, Board Oversight and Stakeholder Accountability

Survey responses indicated a lack of focus and scrutiny regarding overseers and the acknowledgment of the rights of the employees. As Keay (2010) states, the exclusion of the worker from the pillar corporate governance problem is a direct result of the legal framework of corporate governance which views profit maximization as the be-all and end-all of corporate activity. Aluchna and Roszkowska Menkes (2019) hold that the convergence of CSR and governance on the Board as the Bring Governance Convergence works to the enhancement of accountability to non-shareholder stakeholders. According to Ciravegna & Nieri (2022), the obligation of due-diligence compelled the board to understand and assess the risks of labour which in-turn prompted the board to shift to a stakeholder governance perspective. To summarize, the lack of alignment of the frameworks of the corporate boards to the representation of issues of workers' rights serves as evidence that the governance is still encased in a focus of shareholders.

4.3.9 Transparency, Disclosure, and the Accountability Gap

Regulators and civil society organizations defending the rights of the civil society organizations point out the limited scope of disclosure regarding the safety of employees, credit wage compliance, and contracts. Hess (2019) observes that in the case of human rights and sustainability, disclosure becomes a "transparency trap" where companies disclose some information while strategically hiding relevant risk information. Deegan and Rankin (1997) describe the symbolic nature of disclosures in the corporate world, which serve more as a guise for reputation management rather than honest accountability. Advanced governance structures make Torelli et al. (2025) better positioned predictors of human rights disclosure and accountability which suggests the opacity is driven primarily by not having mandatory disclosure. For companies in Zambia, selective and incomplete disclosure appears to be the standard.

4.3.10 Judicial Accountability and Pressure from International Litigation

The study pointed out the increasing judicial accountability within the area of accountability when the domestic system is inadequate. As stated by Chirwa (2020), via transnational litigation, a court in a foreign jurisdiction can make a ruling against a multinational and make it accountable for the abuses happening in Africa. For Ruggie, (2013), he also argues that extraterritorial litigation enhances access to remedy and compels corporations to tighten control within the



borders to evade reputational risks. In the case of Total Uganda, Deegan and Rankin (1997) showed that home-country courts can enforce corporations' obligations of compliance to due-diligence. The current study also pointed to increased litigation directed against mining companies, which is a clear indication that the courts, local and foreign, can influence governance reform when companies refuse to comply.

4.3.11 Global Regulatory Developments and Implications for Zambia

The new approach to accountability in human rights and business relations moving from non-binding to binding is evident from the March 2023 draft directive from the EU and ongoing preliminary talks in the EU. As noted by Federal Ministry of Labour and Social Affairs [BMAS] (2023) the German Supply Chain Due Diligence Act expects companies to assess, mitigate, and document the impact risks, including adverse human rights impacts, in their supply chains in Germany. As noted by the OHCHR (2024) legally mandated and required due diligence is now moving across Asia. Zambian firms that are global players in the supply chains will face non-voluntary and less selective due diligence.

4.3.12 Structural Implications for Zambia's Corporate Governance Environment

Interviews indicate that non-compliance with labour rights standards can be attributed to structural power differences, informality and weak oversight, and silence from the workforce. In developing economies, governance outcomes, according to (Hale et al, 2013), depends on the institutional enforcement systems' strength, not on and the legal provisions. Peters et al. (2020) argues that the absence of oversight and governance constitutes a failure to address human rights, and the weak enforcement of the oversight system is the primary mechanism through which legal compliance is undermined. Backer (2020) argues that achieving corporate governance compliance with human rights requires systematic alignment of law and enforcement mechanisms. For Zambia, this implies not a lack of legislation, but weak institutions; the enforcement of labour rights will require strengthening the enforcement framework rather than broadening the policy rhetoric Chirwa (2020)

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This research examined the integration of labour rights by Zambian corporate governance and business practices, particularly in concern with accountability in practice and not just policy. There are legal frameworks and corporate policies governing labour rights; however, implementation is unequal and in many cases absent. Governance systems tend to favour 'box ticking' over the protection of workers in the most vulnerable sectors, mining, agriculture, construction and manufacturing. It was noted that corporate governance systems, in principle, do not provide for internal mechanisms to ensure that labour standards are integrated in day-to-day operational decisions. Weakly structured corporate accountability systems incorporate labour rights.

The report explains the gaps in enforcement and organisational systems lacking the protection of workers within the context of the abuse of labour rights in Zambia. Both quantitative and qualitative analysis revealed that there was a very small proportion of businesses that could be said to fully integrate the rights of labour with their governance systems, while most others were identified as having a very low to moderate level of commitment. Structures of informal employment, ineffective grievance mechanisms, and the absence of concern for labour issues at the level of the board all impair accountability. These conditions together create underpayment, poor and unsafe working conditions and the fear of asserting rights.

The study states that frameworks of corporate social responsibility and ESG have not led to better labour outcomes. These frameworks can be reputational instead of being accountability frameworks. Without proper enforcement and weak government compliance, companies can keep their symbolic compliance while not improving the treatment of workers. The Zambian case demonstrates that the protection of workers' rights relies on governance frameworks that are directly enforceable, with business responsibility linked to protective governance, rather than relying on voluntary frameworks.

5.2 Recommendations

Given the gaps in governance and enforcement in this study, Zambia should introduce mandatory human rights due diligence for medium and large firms, particularly in labour-intensive sectors. Companies ought to be responsible for the identification, prevention, and management of risks to rights in the work and supply chains. This would mean due diligence would unilaterally make employment rights non-negotiable for corporations, and would instead acknowledge employees as rights holders, as opposed to beneficiaries of goodwill. More clarity would also help regulators assess whether companies are complying with their duties.

While the report has rightly suggested bolstering the capacity, autonomy, and scope of the labour inspectorate, it should also be reiterated that inspectors ought to be sufficiently resourced, trained, and given the authority to follow



up on and penalise breaches. The use of remote reporting and decentralised inspection units should be employed to improve coverage of remote and under-served areas in mining and agriculture. The more the enforcement mechanisms are strengthened, the more it will be evident that the labour laws are not being broken, and the more the cost of non-compliance will be for the employers.

The report also supports accountability systems centered on workers, where workers themselves are empowered to assess and report on the conditions of their own work. Unions and civil society actors would support the development of such reporting systems from workers, which may decrease the chances of retaliation and improve the chances of remedy. Lastly, safe, independent, and dependable channels where workers can report violations are needed, and that means that businesses must work to establish their grievance mechanisms. More formalized employment relationships, contract transparency, and punctual wage payments would improve labour protection. These suggestions present a realistic approach to transforming the corporate governance of Zambia into a governance system that protects the rights of workers.

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Factors affecting the sustainability of group-based loan programmes from the Youth Development Fund in Ilemela District, Tanzania

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ABSTRACT

Tanzania's government set up a way for young people to ask for financial help through group-based loan programs in order to boost socioeconomic development. In spite of this, these projects face many problems on their way to their goal. As a result, this study looked into the factors that affect how long group-based loan programs at Ilemela District can last. The goal of the study was to find out how group relations, financial knowledge, and risk management affect the long-term viability of loan programs for groups. In order to reach these goals, the study was based on the theory of planned behavior. A hybrid approach and the constructivism research theory were used in the study, which used a convergent parallel design. A simple random sampling method was used to get 134 young people to fill out surveys, and 8 were chosen at random to be interviewed. The quantitative data analysis was done with SPSS, and the factors of the study were evaluated using the linear regression model. Thematic analysis was used to look at qualitative data. The results show that group dynamics, financial literacy, and risk management strategies all had a positive effect on the long-term success of the group-based loan plan at Ilemela District. All of these factors were statistically significant. Financial knowledge was found to have the biggest effect on the long-term success of group-based loan programs. It was also the most important of the three factors. The researcher found out that the government and other interested parties should set up the right checks to make sure that borrowers understand money before giving them loans. The study also shows that the problems of financial literacy, group dynamics, and risk management that come with group-based loan programs should be fixed by carefully screening the people who want to borrow money and giving the groups that will be receiving loans more tools to help them succeed.

Keywords: Group-Based Loan Programmes, Sustainability, Youth Development Fund, Tanzania

I. INTRODUCTION

According to Meuwissen et al. (2019), a group loan plan is a type of financing in which a solidarity group of several people agree to repay the loan by putting up collateral or guaranteeing the loan. Targeted customer groups are given the chance by Ndung'u (2022) to use currency for small businesses and other activities that bring in money, which improves their quality of life. According to the International Labour Organization (ILO), there are about 68 million women and teens working around the world in 2020. The US government set up a program called the Child and Adolescent Development Fund, which has a budget of USD 15,000. The goal of the program is to help young people become successful and build their finances. In Sub-Saharan Africa, people who can't meet the requirements for individual loans have limited access to financial services and one-on-one help. Consequently, these small and medium-sized businesses frequently depend on Group-Based Loan Schemes as an alternative (Nkwocha et al., 2023). Even though new countries have been formed in sub-Saharan Africa, adolescent growth is still a big problem.

National Youth Development Funds (NYDP) were set up in some countries, like Mali and Tunisia. It was the main goal of these funds to help young people get jobs by bringing together and funding banking institutions, social funds, and other groups that work with youth employment. The Tanzanian government set up the Youth Development Fund as part of the Exchequer and Audit Ordinance Cap 439 No 21 of 1961. The goal of this project is to give young people more economic power by giving them small loans with a 10% interest rate and few requirements to qualify. During the 2019/2020 fiscal year, the government gave 1.2 billion Tanzania Shillings (TZS) to the prime minister's office to fund projects that would help young people get jobs, improve their education, and get involved in society. Through the Prime Minister's office, the government of the United Republic of Tanzania set up a way for young people to ask for financial help through group-based loan programs.

The goal of this platform is to improve social and economic development by making it easier to reduce and get rid of poverty by promoting business activities and skill development. Kasoga and Tegambwage (2021) are among the many experts who have noticed that joint liability is used in group-based loan programs to help poor people get money.



Also, the socioeconomically developed groups of people who will benefit are not well enough defined (Livingston et al., 2022). Also, some of the people in the group who got loans did not pay them back as planned. So, the researcher decided to look into the things that affect how long group-based loan programs can last. It was relevant to group-based loan plans that the literature was looked at. The main goal of most of these studies (Nkwocha et al., 2023; Indriani et al., 2023) was to show that group-based loan programs help reduce poverty and boost socio-economic growth. Becker et al. (2020) both say that group-based loan plans are a good way to set up group liability. This is because everyone in the group is responsible for making sure that the loan money is used quickly and effectively. Even though these useful findings were made, the literature did not look into the factors that affect how long group-based loan programs last, especially those that involve loans from the local government. The researcher also found methodological differences between studies that used either a quantitative or qualitative technique, which made it harder to apply the results to other situations. Because of this, the researcher used a mix of methods to do this study. In addition, most researchers did not review the use of statistics to look at how the research variables were related. Multiple regression analysis was used to look at the link between the variables in this study.

1.1 Research Objectives

- i. To find out how group behaviors affect the long-term viability of loan programs that work in groups.
- ii. To examine how long group-based loan programs can last in terms of teaching people about money.
- iii. To determine how different risk management techniques, affect the long-term viability of loan programs for groups.

1.2 Research Questions

- i. What effect does the way a group works have on how long group-based loan plans last?
- ii. If people know how to handle their money better, will the group loan programs last longer?
- iii. What effect do risk management techniques have on scheme for group loans that last?

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Planned Behavior Theory

Theoretically the study was guided by the Theory of Planned Behavior that led to this study. The Philosophy of Planned Behaviors came up with this idea in order to predict how people would act (Ajzen, 1991). The Theory of Planned Behavior (TPB) says how people feel about behaviors, what they think are the right things to do, and how much control they think they have over their actions all affect their decision to do them. The idea of planned behaviors says that they can be carried out with the help of behavioral control, motivation, and purpose. The first type of opinion is a behavioral normative view. The other two types are control views. The things people do and choose to do with their money have to do with how money works and what businesses need. To keep up with changes in the business and academic worlds, behavioral factors were added to the process of making financial choices that involved behavior in the financial world. Because of their cognitive errors and the way, they think, investors may not make good decisions. Several groups started to notice changes on how money was being handled. The area of behavioral finance tries to explain and learn more about how investors think and make decisions, including how much their feelings affect the process. From a human point of view, behavioral finance tries to explain what money and investments are, why they work the way they do, and how they work (Ren, 2024). Cui (2024) says that behavioral finance is the study of how people act when they are handling money.

In particular, look into how psychology affects business choices, the stock market, and financial markets. From what has been said, it is clear that behavioral finance is a way of thinking about how people handle or spend their money, which is affected by psychological factors like how well they understand money, how they feel about risk, and their home base bias. This study looks at the Youth Development Fund's group loan programs in Tanzania using the theory of planned behavior to find out what makes them work and what makes them fail. The TPB helped find and rate important factors that affect the long-term success and sustainability of these loan programs by looking at things like financial knowledge, risk management, and how groups work. By understanding how these factors affect the plans and actions of young businesses in group-based loan programs, the researcher can come up with ways to make the funding programs last longer and work better. This theory made it easier to look closely at how these financial plans would work in the long run, taking into account both individual and group actions. Microfinance theory helped this study because it looks at things like financial knowledge, risk management, and group dynamics in group-based loan schemes (Kapkiyai & Mugo, 2015) This is because borrowing and repaying loans is done as a group. Most of people agree that knowing how to handle money is an important part of making group loan programs in microfinance work. Also, microfinance



theory talks about how to handle risks for group-based loan programs, since everyone in the borrowing group shares the risk when they take out a loan.

2.2 Empirical Review

2.2.1 Effect of Group Behavior on the Long-Term Viability of Loan Program

Different Literatures have shown how different groups work has effect on how long group-based loan programs can last. Nkwocha et al. (2023) used people from 150 different groups to test how well group-leading methods worked for providing microfinance in Nigeria. The study looked at how peer tracking, group formation, coercion, and support work as ways of leading a group. The results show that group leaders, who are mostly to blame for members not paying back their loans, are more determined than other members to keep an eye on and put pressure on members. According to the results, some group leaders act in ways that hurt the long-term success of microfinance projects and the unity of the group, even though they have important roles to play. In Indonesia, Indriani et al. (2023) looked at the group financing approach by setting up a community empowerment trust fund. The point of this study is to look into how the borrowing group is managed, specifically how the group works together, how group loans are evaluated and tracked, and how social capital affects how well people pay back their loans. What the study found is that social capital, the management of group lending, and the evaluation of group lending all have a good effect on the ability to repay loans.

The study shows that social capital improves the control dynamics of group loans, which makes it easier for people to pay them back. Additionally, the loan groups have a higher success rate of collecting back loans compared to effective economic company groups with both male and female leadership. Becker et al. (2020) did a study to look into the link between macroprudential control and the way people interact within a group. In Western Bengal, they found trends by using data from bank branches and headquarters that were matched. The results show that macroprudential policies have an effect on how wealth is distributed across regions. This result is achieved by a well-known microfinance program that works well with the internal capital market and is based on group lending. The goal of the program is to help rural people in two parts of the Hooghly district in Western Bengal get ahead financially. Ngaruko did a study in 2022 to look into how group-based lending costs affected family-run businesses in the Kagera Region. A sample of 279 family business owners from four rural areas in the Kagera region were used in the study. The results show that most of the transaction cost variables that have to do with getting information for potential borrowers, negotiating, and making decisions are bad for business performance. To make sure that family-owned businesses have a big effect on socioeconomic benefits, it is necessary to pay for the costs of keeping the law in rural places where group financing is common.

Ho₁: The ability of group-based loan programs to last is strongly and negatively linked to how the groups work together.

2.2.2 What Learning about Money does to the Long-Term Viability of Group Loan Programs

In 2019, Purwidiand and Tubastuvi did a study on how small and medium-sized businesses (SMEs) in Indonesia handle their money based on how much they know about money and how much they understand about it. Knowing about money and having experience with it are the independent variables, and how people handle their money is the dependent variable. The group of respondents is made up of 42 Purwokerto Seletan business owners who run small to medium-sized businesses. Multiple regression analysis was used in this study. From the four control factors, the results show that only company size has a statistically significant negative effect on how people handle their money. Yakob et al. (2021) did a study to look into how financial knowledge affects the business efficiency of small and medium-sized companies in Malaysia. A poll was given to 200 managers and owners of small and medium-sized businesses to get the results. Multiple regression analysis was used to look at how financial literacy affects the performance of small and medium-sized businesses. It was also used to look at how manager profiles and traits that are unique to small and medium-sized businesses affected performance.

The results show that there is a strong and clear link between financial literacy and the success of small and medium-sized businesses. In 2024, Grana-Alvarez et al. did a study to find out how financially savvy small and medium-sized businesses are. They found that knowing about money is important for understanding how well small businesses are doing generally. But the size of its effect hasn't been studied in depth, and the study that has been done so far isn't complete. A thorough review of the existing literature is done for this study, which focuses on the factors that lead to and the results of having a good understanding of financial issues in small and medium-sized businesses. The findings show that cultural, educational, and environmental factors come before financial literacy. So, financial knowledge has a big effect on how people think about and handle money, how well small and medium-sized businesses can run, and how well they do overall. In Kirumbi (2019), the author looked into how business owners in Morogoro Municipality's small and medium-sized businesses are affected by their knowledge of money matters. The results show that most of the people who answered the survey had a good enough understanding of money by correctly answering questions about a wide range of terms and ideas. The study found that having financial knowledge alone is not enough to make sure that

a business makes money. It emphasized how important it was to use this knowledge in making decisions and doing other business-related tasks.

Ho₂: The ability to understand and manage money is strongly and positively linked to the longevity of group loan programs.

2.2.3 How different Risk Management Strategies Affect Longevity of Group-Based Loan Programs

A study by Malhotra and Baag in 2021 looked at group loans as a type of microfinance. The study is mainly about the problems Joint Liability Groups (JLGs) encounter when they try to give credit to people who aren't part of the official banking system or who can't easily access banking services. Lenders don't know how creditworthy most people who don't have bank accounts or are underbanked are because they don't have anything that can be used as collateral. The lack of rules has made it impossible for JLGs to keep accurate financial records or hold regular meetings. The study showed that peer tracking and enforcement can make Joint Liability Groups much more financially stable. The study by Njuguna et al. (2017) looked at how strategic risk management plans affected the growth of the microfinance institution (MFI) industry in Kenya. This study will also make it easier to create social contracts and shared credit agreements for people who get microfinance through Joint Liability Groups.

The correlation survey study method was used during the investigation. Seventy-seven (57) microfinance companies were used as samples for this study. A method of random picking was used to pick a group of thirteen MFIs. A plan for interviews and a questionnaire were the main tools used to collect data. The results show that MFIs took steps to make sure that board members didn't have any conflicts of interest. One of these steps was making sure that business deals were done without any bias, that all conflicts of interest had to be fully disclosed, and that confidential lending was not allowed. In Nakuru County, Kenya, Ndung'u (2022) looked into how information inequality affected the link between how well government business development funds' loans did and how they handled credit. Also, the results show that credit parameters have a big, good effect on how well loans do. The results also showed that methods for controlling credit risk have a big and positive effect on how well loans are paid back. The study found that credit risk management methods have a big effect on how well Government Enterprise Development Funds loans are paid back.

Ho₃: The ability of group-based loan programs to last is strongly and positively linked to how well risk management techniques are used.

III. METHODOLOGY

This study used a convergent parallel research technique to collect and analyze both quantitative and qualitative data in order to come up with a single result. The researcher was able to use different data collection and analysis methods with this approach, which made sure that the study's goals were met with complete and useful data. The review took place at Ilemela District Council. The research looked at 222 people, including 20 people who worked for local governments and 202 teens who had borrowed money from the National Youth Development Fund (NYDF). Simple random sampling and purposeful sampling were both used to choose the people who would be in the study's group. Through in-depth interviews and questionnaires, the researcher's main goal was to get the original data for this study. Sample size for this study was found using the Yamane (1967) method, which is shown below:

$$n = \frac{N}{1 + N(e)^2} = \frac{202}{1 + 202(0.05)^2} \quad n \approx 134.$$

Table 1

Sample Size Distribution

Category	Population	Sample	Percent
District Council Officials	20	8	5.6
Youth	202	134	94.4
Total	222	142	100

3.1 Data Analysis

The Statistical Package for Social Science (SPSS) Version 25 was used to code and look at poll data that was quantitative. The researcher used multiple regression analysis, descriptive statistics, and inferential statistics to look at numeric data. Linearity, multicollinearity, homoscedasticity, and normality tests all showed that the assumptions were correct. The researcher then put the following regression model into action.

$$Y_{SGL} = \alpha + \beta_1 X_{GD} + \beta_2 X_{FL} + \beta_3 X_{RMS} + \varepsilon$$

Where:

Y = Sustainability of Group-Based Loan

- β_s = Partial regression coefficients which give the effect of an independent variable on dependent variable when other factors are held constant.
- X_{GD} = Group Diversity
- X_{FL} = Financial Literacy
- X_{RMS} = Risks Management Strategies
- ε = Error term
- α = Constant

IV. FINDINGS & DISCUSSION

4.1 Findings

In this study, the response rate is the number of people who answered a survey or questionnaire out of the total number of people who were asked to take part. This is an important part of the study because it affects how reliable and valid the research results are. The number of people who answered the survey is shown in Table 2.

Table 2

Response Rate

	Questionnaire Distributed	Questionnaire Returned	
		Frequency	Percent
Youth	134	134	100.0
Total	134	134	100

Table 2 shows that all surveys that were sent out were fully filled out and sent back so that they could be analyzed. This means that there are no complaints at all. A answer rate of 50% or more is usually thought to be enough for statistical analysis, according to Mugenda and Mugenda (2003). Table 3 Respondent Information The demographic characteristics of the respondents are the exact traits that are used to describe and study the population's make-up. These qualities are very important for researchers because they make sure that the data they collect for their studies is accurate and consistent. The researcher looked at things about the people who took part in the study, like their gender, age, level of schooling, and job. Table 3 shows the demographic information of the data.

Table 3

Results of Demographic Characteristics of the Respondents

Character	Category	Frequency	Percent
Sex	Male	78	58.2
	Female	56	41.8
	Total	134	100.0
Age	18 - 24 Years	24	17.9
	25 - 31 Years	34	25.4
	32 - 38 Years	48	35.8
	39 - 45 Years	28	20.9
	Total	134	100.0
Level of Education	Master Degree	13	9.7
	Bachelor Degree	49	36.6
	Diploma	21	15.7
	Certificate	28	20.9
	Secondary Education	17	12.7
	Primary Education	6	4.4
	Total	134	100.0
Occupation	Agriculture	31	23.1
	Business	44	32.8
	Service Provision	59	44.1
	Total	134	100.0
Working Experience	1 - 3 Years	32	23.9
	4 - 6 Years	45	33.6
	7 - 10 Years	36	26.9
	10 Years and above	21	15.7
	Total	134	100.0

Table 3 shows that 41.8% of the interviewees said they were women and 58.2% said they were men. This means that most of the people in Ilemela district who get loans from group-based projects are men. This is how the interviewees' ages were spread out: 17.9% were between the ages of 18 and 24, and 25.4% were between the ages of 25 and 31. Also, 35.8% of the people who took part were between the ages of 32 and 38, and 20.9% were between the ages of 39 and 45. Based on these results, most people who get group-based loans are between the ages of 32 and 38. The next biggest age group is those between the ages of 25 and 31. It also showed that 36.6% of those who answered had a bachelor's degree and 9.7% had a master's degree. In addition, the study shows that 15.7% of the people who answered had a diploma and 20.9% had a certificate-level education. It was also found that 12.7% of the participants had completed secondary school and 4.4% had completed primary education. In Ilemela District, this means that most of the people who get group-based loans have a college degree, with Bachelor's degree holders being the most common group. Most of the people who answered were interested in business; 32.8% were business owners and 44.1% were service providers. 23.1% of the people who answered were interested in agricultural activities. 23.9% of those who answered had between 1 and 3 years of work experience, and 33.6% had between 4 and 6 years of experience. Also, 26.9% of the people who participated had between 7 and 10 years of experience, and 15.7% had 10 years of experience or more.

4.2 Descriptive Analysis

This part gives a detailed look at the things that were thought to affect how long group-based loan plans at Ilemela District would last. To meet the goals of this study, the results are shown in a way that considers the factors.

4.2.1 A Descriptive Analysis of Group Dynamics;

The researcher in this study looked at the effects of how groups work. Table 4 shows a summary of what was found.

Table 4

Descriptive Statistics on the Group Dynamics

S/N	Statement	Mean	Std. D
GD1	There may be individuals who are inclined to benefit from the loan without contributing adequately	3.31	1.373
GD2	Unfair treatment or exploitation of certain members, especially those who are economically vulnerable	3.24	1.498
GD3	Conflicts among group members can arise due to differences in opinion, behaviour, or contribution levels	3.46	1.380
GD4	Trust among group members is essential for the success of group loans	3.29	1.325
GD5	Group loans are inherently riskier than individual loans due to the shared liability among group members	3.36	1.340
GD6	Group dynamics can also influence how effectively loan funds are utilized within the group	3.69	1.270
GD7	The composition of the group and the selection of its members can significantly influence the success of group loans	3.61	1.435
	Overall	3.422	1.374

People who are likely to take advantage of the loan without giving enough had a mean value of 3.31 and a standard deviation of 1.373, as shown in Table 4. A mean of 3.24 and a standard deviation of 1.498 show that unfair treatment or abuse of some members, especially those who are weak financially, has a lot of differences. Different opinions, behaviors, or levels of input can lead to arguments between people in the group, with a mean of 3.46 and a standard deviation of 1.380. Also, group loans are riskier than individual loans because everyone in the group is responsible for the debt (Mean = 3.36 and SD = 1.340), and trust between group members is needed for them to work (Mean = 3.29 and SD = 1.325). The way people in the group interact with each other can also affect how well they use loan funds (Mean = 3.69 and SD = 1.270). Last but not least, the average value of 3.61 and the standard deviation of 1.435 show that the success of group loans depends a lot on the people in the group and how they were chosen. In general, the study found that the mean number was 3.422 and the standard deviation was 1.374. Most people who answered agreed or strongly agreed that the youth development fund's group-based loans program should continue at Ilemela District. This was shown by the fact that most of the factors used to rate the group dynamics were rated as either agree or strongly agree. A

4.2.2 Descriptive Analysis of Financial Literacy

In this study, the expert also looked at the effects of knowing about money.

Table 5*Descriptive Statistics on Financial Literacy*

S/N	Statements	Mean	Std. D
FL1	Financially literate individuals within the group are better equipped to make informed decisions about borrowing	3.33	1.386
FL2	Financial literacy empowers individuals to negotiate favourable loan terms with lenders or microfinance institutions	3.75	1.210
FL3	There is inadequate training on the loan management process	3.83	1.147
FL4	There is a lack of understanding of the terms and conditions of the group loans	3.77	1.096
FL5	Group members are not aware of budgeting and financial planning	3.90	1.018
FL6	Group members are not equipped with skills to develop realistic sources of income, estimation of expenses for loan repayment	4.14	0.951
FL7	There is no basic knowledge of relevant laws, regulations, and consumer protections governing group loans	4.19	1.020
	Overall	3.84	1.118

Table 5 shows the results that were found. Table 5 shows that people in the group who know more about money are better prepared to make smart choices about borrowing (Mean = 3.33, SD = 1.386). Additionally, knowing about money helps people get better loan terms from lenders or microfinance institutions (Mean = 3.75, SD = 1.210). But people don't understand the terms and conditions of the group loans (Mean = 3.77, SD = 1.096) and haven't been trained enough on how to handle loans (Mean = 3.83, SD = 1.147). Members of the group also don't know how to make a budget or plan their finances (Mean = 3.90 and SD = 1.018), can't think of realistic ways to make money, and can't guess how much it will cost to pay back a loan (Mean = 4.14 and SD = 0.951). Furthermore, individuals do not have a basic understanding of the laws, rules, and customer protections that apply to group loans (Mean = 4.19 and SD = 1.020). In this study, the mean was found to be 3.846 and the standard deviation was 1.118. This means that most of the factors that were used to figure out the effect of financial literacy got either agree or highly agree ratings.

4.2.3 A Descriptive Study of Risk Management Strategies

In this study, the researcher also looked at how risk management techniques worked. Table 6 shows the findings that were found.

Table 6*Descriptive Statistics on Risk Management Strategies*

S/N	Statements	Mean	Std. D
RMS1	Mitigation of credit risk, which is the risk of borrowers defaulting on their loans	3.78	1.167
RMS2	There is a lack of careful selection and formation of borrower groups	3.72	1.265
RMS3	There is ineffective continuous monitoring and evaluation of borrower groups and their repayment behavior	3.84	1.171
RMS4	The risk identification process among group members is not effective	3.88	1.055
RMS5	Risk response also is not effectively conducted by the group members	3.76	1.132
RMS6	Diversification of loan portfolios is another risk management strategy that can enhance suitability	4.12	.989
RMS7	Lenders need to adapt their risk mitigation strategies based on evolving risk factors	4.12	1.176
	Overall	3.88	1.136

The numbers in Table 6 show that the process of lowering credit risk, which is the chance that borrowers won't pay back their loans, isn't working (Mean = 3.78 and SD = 1.167), that the formation and selection of borrower groups isn't being thought through carefully (Mean = 3.72 and SD = 1.265), and that the ongoing evaluation and monitoring of borrower groups and how they pay back their loans isn't working (Mean = 3.84 and SD = 1.171). It also doesn't work for group members to figure out what the risks are (Mean = 3.88 and SD = 1.055). On the other hand, the members of the group are not doing a good job with the risk reaction (Mean = 3.76 and SD = 1.132). Diversifying loan stocks is another way to lower risk and make them more suitable (Mean = 4.12 and SD = 0.989). Because risk factors are always changing (Mean = 4.12 and SD = 1.176), lenders need to make changes to how they reduce risk.

4.2.4 A Descriptive Study of how Long Group-Based Loan Programs can last

The researcher also study also looked at how sustainability affects loan programs for groups. Table 7 shows the findings that were found.

**Table 7***Descriptive Statistics on Sustainability of Group-Based Loan Schemes*

S/N	Statements	Mean	Std. D
SGL1	There is low financial inclusion among its members	3.87	1.109
SGL2	The group-based loan scheme does not effectively address the financial needs of its participants	3.08	1.522
SGL3	Loans secured by the group a timely repaid to the local government authorities	3.32	1.412
SGL4	There is a lack of follow-up mechanisms to enhance efficient repayment	3.18	1.370
SGL5	Some groups which have secured loans have no proper financial skills	3.23	1.365
SGL6	The group-based loan scheme has no potential for long-term sustainability	3.56	1.374
	Overall	3.37	1.358

The results in Table 7 show that the group-based loan plan doesn't help its participants with their money problems (Mean = 3.08 and SD = 1.522), and the loans that the group gets aren't paid back on time to the local government (Mean = 3.32 and SD = 1.412). The people of the group also have low financial inclusion (Mean = 3.87 and SD = 1.109). On the other hand, the lack of a follow-up tool to make repayment more efficient had a mean of 3.18 and a standard deviation of 1.370. The scheme for group loans can't work in the long run, and some of the groups that have gotten loans don't know how to handle their money properly (Mean = 3.23 and SD = 1.365). The main results of this study show that most of the people who answered either agree or strongly agree with the points that make group-based loan programs last.

4.3 Factor Analysis for Exploration

To make sure that factor loadings are correct and that they always measure the same thing, factor analysis is needed. The researcher chose to do Exploratory Factor Analysis (EFA) to check the factor loadings and figure out why the items were put together the way they were for the regression analysis. During the EFA process, items that don't load above the 50% level suggested by O'Brien and Scott (2012) or that don't strongly relate to other items are usually thrown out.

Table 8*KMO and Bartlett's Test Results*

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.744
Bartlett's Test of Sphericity	Approx. Chi-Square	96.667
	Df	351
	Sig.	.000

Table 9*Exploratory Factor Analysis Results*

	Loading			
GD2	.738			
GD3	.717			
GD4	.613			
GD5	.831			
GD6	.804			
GD7	.834			
FL1		.821		
FL2		.785		
FL5		.798		
FL6		.606		
FL7		.802		
RMS1			.715	
RMS3			.501	
RMS4			.781	
RMS5			.715	
RMS6			.720	
RMS7			.681	
SGL1				.757
SGL2				.728



SGL3				.764
SGL4				.742
SGL5				.867
SGL6				.807

The findings from Table 8 and Table 9, the KMO test was used to see if the results were good enough for factor analysis, as shown in Table 8. It checked whether factor analysis was useful by seeing if the correlation between variables was high enough. As shown by the Chi-Square value of 96.667 and the scores of 0.744, which were statistically significant at 0.000, the KMO indicators measure results show that the indicators were carried out. Because of this, it was enough, and the researcher was able to do more exploratory factor analysis, as shown in Table 9. The loading values for most of the factors in Table 9 are higher than 0.60. Only a few things, like GD1, FL3, FL4, and RMS2, have a loading value below 0.60. Because of this, these factors were taken out, and then a factor analysis was done. The factor analysis needs to be done again, and the things that have lower loading must be taken out. So, the factors for the four independent variables were taken out, and the EFA was run again. All of the other factors had a loading value above 0.60, according to the findings. So, an upper limit of 0.60 was set in SPSS so that indicators could be added to their predicted factor (Osborne & Waters, 2002). As shown above, the final EFA data showed that all indicators were properly included in their corresponding factors.

4.4 Checking the Truth of Parametric Assumptions

As other experts have said, it is important to check parametric assumptions before doing a regression analysis (Gujarati & Porter, 2009). This study agreed with those suggestions. It is suggested that you use the parametric assumption of linearity, normality, multicollinearity, and homoscedasticity. Test for Linearity The purpose of the linearity test is to find out if the relationship between the factors that are dependent and those that are independent is linear. If all other predictors stay the same, this assumption says that the link between the dependent variable and each independent variable is linear. The linearity assumption makes sure that the estimated coefficients are fair and that the factors can be relied on. If this assumption isn't followed, it could lead to wrong opinions about the relationship between variables. The researcher used correlation analysis to find the linearity tests.

Table 10

Results of Correlations Analysis

		SGL	GD	FL	RMS
SGL	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	134			
GD	Pearson Correlation	.181*	1		
	Sig. (2-tailed)	.036			
	N	134	134		
FL	Pearson Correlation	.291**	.760**	1	
	Sig. (2-tailed)	.001	.000		
	N	134	134	134	
RMS	Pearson Correlation	.120	.488**	.680**	1
	Sig. (2-tailed)	.167	.000	.000	
	N	134	134	134	134

**. Correlation is significant at the 0.01 level (2-tailed).

Table 10 shows a summary of the data. The association coefficient (r) was statistically significant with a p -value of 0.01, as shown in Table 10. The long-term success of group-based loan programs was linked to the way the groups worked, as shown by the values $r = 0.181$ and $p = 0.036$. The statistical test showed that this link was real. The results also showed a weakly positive link ($r = 0.91$, p -value = 0.001) between the long-term viability of the group-based loan plan and financial knowledge. Another thing that was noticed is that risk management techniques are weakly positively linked to the long-term viability of group-based loan programs ($r = 0.120$). The p -value, on the other hand, is 0.167, which means the finding is not statistically significant. The p -value of 0.001 shows that there was a statistically significant and positive link between the independent factors and the dependent variable. Field (2013) also found that a p -value less than 0.05 means that the difference is statistically significant, which supports the link. Field (2013) says that a p -value of 0.000 means that the statistical significance is very high.



4.5 Test for Normality

A normality test is used to see if a sample can be accurately described by a normal distribution curve. You can use either a normal distribution curve or the Skewness and Kurtosis tests to give the test. In general, when the data is not normally distributed, it can change the results and be hard to show what factors are important. Because of this, Skewness and Kurtosis tests were used to see if the results for all parameters in the questionnaire were normal.

Table 11

Results of Normality Test

	N	Mean	Std. D	Skewness		Kurtosis	
	Stat	Stat	Stat	Stat	Std. Error	Stat	Std. Error
SGL	134	21.0373	4.43907	-.149	.209	-.531	.416
GD	134	25.8209	6.27664	-1.021	.209	.411	.416
FL	134	26.6194	5.35898	-.945	.209	.876	.416
RM	134	26.8507	5.42828	-.947	.209	1.100	.416
Valid N (listwise)	134						

Table 11 shows the outcomes that were discovered. The Skewness and Kurtosis tests shown in Table 11 showed that all variables were normally distributed because their statistical values were within the acceptable range. The Skewness and Kurtosis test, according to Tabachnick and Fidell (2007), works well within a range of ± 3.13 . Because of this, we can assume that the data has a normal distribution. This means that regression analysis can be used to look at the data (O'Brien & Scott, 2012).

4.6 Test for Multicollinearity

This is meant to make sure that variables that are not tied to each other are independent. Because of this, a low association between the independent variables should make it easy to figure out which dependent variable predictor has the most significant effect. To find multicollinearity, the Vector Inflation Factor (VIF) was used with range values shown in Table 11 (Gujarati & Porter, 2009).

Table 12

Results of Multicollinearity Test

Variables	Tolerance	VIF
FL	.421	2.376
RMS	.297	3.369
GD	.535	1.868

The independent factors in Table 12 had low multicollinearity, as shown by the fact that their VIF and tolerance rate coefficients were within acceptable limits. Stevens (2009) says that a low amount of collinearity is shown by a low Variance Inflation Factor (VIF) and a high Tolerance rate. There is a lot of variation in the VIF value, which is usually between 1 and 10, but the tolerance number is close to 0. As a result, the results show a low amount of multicollinearity, which lets the researcher move on to the next steps of data analysis. Field (2013) says that the variance inflation factor and tolerance are two ways to measure multicollinearity in multiple regression analysis. This is called multicollinearity. It happens when two independent factors in a regression model strongly relate to each other.

4.7 Tests for Homoscedasticity

This test assumes that mistakes in different variables are spread out evenly, which lets a wide range of errors be consistently spread out among variables (Stevens, 2009). To check if the statistical condition of homoscedasticity has been met, a scatter diagram of standardized residuals versus expected values is often used (Stevens 2009). The results that were reached are shown in Figure 1.



Figure 1
Normal P-P Plot

The homoscedasticity tests were met statistically in this study, as shown by the scatter plot, which shows that the residuals were spread out randomly around the horizontal line. As per Osborne and Waters (2002), homoscedasticity can be checked when there is a random scatter residue around the horizontal line.

4.8 Multiple Regression Analysis

Multiple regression analysis proved that the most important things for the long-term success of group-based loan programs were found. The theory showed that there was a link between three variables: Financial Literacy (FL), Group Dynamics (GD), and Risk Management Strategies (RMS).

Table 13
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.617 ^a	.601	.580	4.258	2.409

a. Predictors: (Constant), RM, GD, FL

b. Dependent Variable: SGL

Table 14
ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	262.959	3	87.653	34.833	.000 ^b
	Residual	2357.855	130	18.137		
	Total	2620.813	133			

a. Dependent Variable: SGL

b. Predictors: (Constant), RM, GD, FL

**Table 15***Regression Coefficients*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.829	2.045		2.850	.000
	GD	.074	.026	.104	2.813	.001
	FL	.391	.126	.472	3.092	.000
	RMS	.123	.028	.150	4.321	.000

Dependent Variable: SGL

According to the regression results presented in Table 15, the summary of the regression coefficient above is recorded on the following equation for easy interpretation.

$$\text{SGL} = 5.829 + 0.074\text{GD} + 0.391\text{FL} + 0.123\text{RMS}$$

4.8.1 The dependent variable was Sustainability of Group-Based Loan Schemes (SGL).

The regression analysis results are shown in Table 13, Table 14, and Table 15, which are the Model Summary, the ANOVA Test, and the Regression Coefficients. The regression value R, which is written as R, was 0.617 in Table 13, and the standardized error estimate was 4.258. In addition, the model summary showed that the R square value was 0.601 and the modified R square value was 0.580. The results show that three factors explain 61.7% of the Regression Model, which has now been changed to 60.1%. Because the R Square is 60.1%, it shows that the independent variables can explain the dependent variable by 60.1% if all the other variables stay the same. The Durbin-Watson autocorrelation test also came back with a result of 2.409, which means there is no problem with autocorrelation. That is, the autocorrelation assumption of the residuals wasn't broken, which made it easier to report the regression results that followed. ANOVA. The second way to explain the regression data is with ANOVA. ANOVA is often used to find out how variables interact with each other, both within and between groups. A one-way analysis of variance (ANOVA) was used to look into the link between the average values of parameters that affect how long group-based lending schemes can last. The results are shown in Table 14.

The regression equation shows that each independent variable can explain the dependent variable based on the unstandardized Beta coefficient and Sig Values, as long as all the other variables stay the same. We have a Group Dynamics (GD) value of 0.074, which means that for every one unit increase in GD, the Group-Based Loan Schemes (SGL) become 0.74 units more sustainable. The statistical significance of this increase is 0.001, as long as other factors (FL and RMS) stay the same. It was also noticed that knowing about money has a correlation of 0.391. This means that a one-unit rise in financial knowledge causes a 0.391-unit rise in the SGL, which is statistically significant at 0.000, as long as the RMS and GD parameters stay the same. The results also show that methods for managing risks have a coefficient of 0.123, which is statistically significant at 0.000. When GD and FL stay the same, an increase of one unit in RMS causes an increase of 0.123 in SGL. As shown by the total results of this study, the three predictors—GD, FL, and RMS—have a big effect on the dependent variables. The adjusted coefficient value of 0.472 shows that the effect is most noticeable in SGL with FL.

4.9 Discussion

Research results shows the effect of how long group-based loan programs can last. The descriptive data for this study showed that the mean value of group dynamics was 3.422 and the standard deviation was 1.374. This means that most of the people who answered agreed that the way groups work might affect how long the Youth Development Fund's group-based loans program at Ilemela District lasts. Because most of the factors used to judge how the group worked were rated as either highly agree or concur, this is the case. Correlation research also shows that the long-term success of group-based loan programs is strongly and positively linked to how the groups work together. The p-value was 0.036, which is less than the 0.05 level of significance. At this level, the association that was seen is therefore statistically significant. Along these lines, regression analysis also showed that group behavior has a big impact on how long group-based loan programs last (a value of 0.074). These results agree with those of Nkwocha et al. (2023), who found that members of a group are more likely to be watched and put under pressure because they are mostly to blame for other members not paying back their loans.

The results also show that some group leaders abuse their power in ways that threaten the long-term success of microfinance and the group's unity, even though it was agreed that they played important roles. Indriani et al. (2023) also show that group lending appraisal, group lending control, and social capital all have a good effect on people's ability to pay back loans. The study shows that social capital improves the control dynamic of group lending, which in turn makes it easier to pay back. According to Becker et al. (2020), the economic situation of people living in rural areas in two blocks of Hooghly district in Western Bengal can get better thanks to the cross-regional distributional effect of macroprudential policies that work through the internal capital market effectiveness of group-leading based



microfinance programs that run through primary agricultural credit societies. As Ngaruko (2022) shows, the transaction costs of law enforcement and monitoring can't be avoided in rural areas where group lending models are common. This is to make sure that family-owned businesses have a big effect on the economy and society.

4.9.1 What Learning about Money does to the Long-Term Viability of Group Loan Programs

The detailed analysis of the study found that financial literacy had a mean value of 3.84 and a standard deviation of 1.118. The results showed that most of the factors used to measure the effect of financial literacy were rated as either agree or highly agree. Because of this, we can assume that the amount of financial knowledge among members may have an effect on how long group-based lending programs can last. The correlation study gave a p-value of 0.001, which is less than 0.05 and means that the correlation is very statistically significant. So, the study shows that there is a strong and consistent link between financial literacy and the long-term viability of group-based lending schemes. On the other hand, the regression study showed that financial literacy has a level of significance of 0.391. So, we can assume that there is a strong and meaningful link between the amount of financial knowledge and the ability of the group-based loan programs to last in the long run. So, it's safe to say that financial knowledge is strongly and positively linked to the long-term success of Group-Based lending programs. According to Yakob et al. (2021), these results are supported by the idea that financial knowledge has a big and positive effect on the success of small and medium-sized businesses (SMEs). These findings are supported by Grana-Alvarez et al. (2024), who show that educational, cultural, and environmental factors come before financial literacy. Financial knowledge has a direct effect on how small and medium-sized businesses (SMEs) think about money, how they handle money, how well they can organize their finances, and how well they do overall. However, Kirumbi (2019) came to the conclusion that a company's ability to make money cannot be guaranteed by its financial smarts alone. He stressed how important it is to use what you know when doing economic tasks and making decisions.

How different risk management strategies affect how long group-based loan programs can last It was found that people either agreed or strongly agreed with the study's determinants of risk management methods. The mean score was 3.88, and the standard deviation was 1.136. As a result, it is possible to conclude that risk management techniques may have an effect on how long group-based loan programs last. Another way to look at it is that there was a strong positive correlation (>0.120) between the longevity of group-based loan programs and risk management techniques. Also, the outcomes of the regression model can be traced back to three indicators, each of which has a regression coefficient of 0.123 units and a significant value of 0.000. The regression coefficient showed that there was a strong and positive link between risk management techniques and the long-term viability of group-based loan programs. In addition, Malhotra and Baag (2021) discovered that peer control and enforcement can help JLGs stay financially stable and pay back their loans, which supports these results. According to Njuguna et al. (2017), MFI rules said that related part (insider) lending was not allowed, all conflicts of interest had to be fully disclosed, and business deals had to be done without any bias. The rules also said that board members couldn't have any conflicts of interest. On the other hand, Ndung'u (2022) showed that credit risk control methods make loan performance much better. The study found that credit risk management methods have a big effect on how well Government Enterprise Development Fund loans perform.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

How Group Dynamic Affects the Longevity of Loan Programs for Groups Results of the study showed that group-based loan programs have usually been used in Tanzania to help small businesses get more money. The government set up the National Youth Development Fund and told young people that they had to work together to bring about good change. There is often peer support and responsibility in group-based loan programs, which can lead to higher repayment rates. Members help each other out and push each other to stick to repayment plans while they are financially responsible. The literature study found a number of problems, such as anger and lessened group productivity caused by some members depending on others' work without contributing themselves. If this isn't handled well, it could make the loan programs less likely to last. The study's findings show a strong and good link between group dynamics and the long-term success of loan programs based on groups. The study showed that powerful members can have an unfair effect on group decisions, which can lead to less-than-ideal outcomes in schemes. In the end, this study found that group dynamics have a good effect on the long-term viability of group-based loan programs.

What effect does group awareness about money have on the long-term success of group loan programs? The study acknowledges that understanding money is important for the long-term success of group loan programs, especially those run by Youth Development Funds. This is because people who know a lot about money are better able to handle their money wisely, which includes making budgets, saving money, and investing. This makes them smarter about how they spend loan money, which makes their businesses more likely to succeed. Lack of financial knowledge, on the other hand, can lead to bad decisions, such as investing in businesses that won't make money and mismanaging funds, which



means not getting the results you want. This study found a strong and positive link between financial literacy and the ability to keep group-based activities going. The study then comes to the conclusion that financial literacy has a good effect on the long-term success of group-based programs. Members who don't know much about money are more likely to fall victim to fraud and bad management, both inside and outside the group. This can also happen when someone doesn't know much about money and spends loan money on things that aren't useful or necessary. This lowers the chances of making money and makes it less likely that the youth development funds' group-based loan programs will continue to work. The study also found a strong and positive link between financial knowledge and the long-term viability of group-based financing programs offered by youth development funds.

How risk management strategies affect the long-term viability of loan programs for groups This study shows that risk management is an important part of credit management. Risk management methods must be put in place for group-based loan programs, especially those that are backed by youth development funds, to last. When it comes to group loans, bad risk management can make it more likely for people to not pay back their loans, because they might not be ready for financial problems or shocks from outside sources. Groups are more likely to have internal disagreements, bad management, and fraud when they don't have clear risk management plans. These problems could make it harder for people in the group to trust each other, work together, and keep the group together. Companies that don't handle their risks well are more likely to be hurt by economic downturns and market changes. A statistically significant and positive link was found between risk management techniques and the long-term viability of group-based loan schemes. So, it's safe to say that risk management techniques have an effect on how long group-based loan programs can last. Poor risk management can make loan programs less stable by increasing the number of defaults, causing internal disagreements, and making the programs more vulnerable to economic shocks. On the other hand, good risk management can help with longevity.

5.2 Recommendation

Policymakers should set up a framework that makes it easier for these loan programs to keep running. This framework should include ways to keep an eye on things and evaluate them on a regular basis. The study also suggests that the government should give money to programs that help youth groups build their skills so they can do a better job of managing their money and finances. To make sure that loans are used and managed well, this includes learning about money, running a business, and developing skills. The findings of this study show that training on how to form groups and run them can make loan programs more useful and long-lasting. This will make sure that the groups work together and that clear lines of authority are set up. This study says that more research should be done to see how long group-based loan programs run by Tanzanian youth development organizations can last. The study could give a critical look at how group-based loan programs are run and the different ways that they are monitored and evaluated. It is also suggested that bigger studies being done that look at different local government agencies.

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Excluded in inclusion: Female employees' perspectives on career progression in the local government system of Ghana

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ABSTRACT

This study examined female employees' perspectives on career advancement within Ghana's local government system, focusing specifically on the Nabdam District in the Upper East Region. It is based on the Resilience and Career Motivation theories to explore female employees' views on their career development in the Assembly. Qualitative case study methods, guided by interpretivism, were employed to collect interview data from 15 female employees. These participants were selected through purposive and census sampling techniques. The data were analysed thematically. The findings are organised into three main themes: Female Motivations for Pursuing a Career, Female Staff Perspectives on Career Progression, and Milestones in Female Career Progression. Results indicate that the women's career advancement efforts were driven by personal ambitions and perseverance but hindered by weak institutional structures. Achieving higher academic qualifications and engaging in professional development were identified as key factors facilitating progression. The study concludes that institutional reforms and cultural shifts are crucial for fostering an equitable and supportive environment for female career development in the Nabdam District. Based on the conclusions, it is recommended that governmental agencies, such as the Nabdam District Assembly, undertake policy reforms that recognise the demands on female employees due to cultural factors and target enhancing female employees' progression at work.

Keywords: Career Progression, Female Employees, Gender Equity, Motivation, Resilience

I. INTRODUCTION

The United Nations Sustainable Development Goal 5 aims to eliminate all forms of discrimination against women and girls worldwide. Similarly, Target 5 of the same goal seeks to ensure women's full and effective participation, as well as equal opportunities for leadership at all levels of decision-making in political, economic, and public spheres. This study draws on the Resilience and Career Motivation theories to explore female employees' views on career advancement within a public agency of the Nabdam District Assembly in the Upper East Region of Ghana. It was conducted with the aim of providing empirical support for recognising women's career development and, in particular, addressing gender issues that have recently become central in development discourse. Clearly, female employees' employment issues are a vital part of good governance and have attracted attention from the World Bank and other civil society organisations. However, the extent to which women's career progression is addressed, especially in public institutions, remains inadequate. Using the Nabdam District Assembly as a case, this work aims to guide public agencies in Ghana to protect, promote, and support women's employment issues.

In today's workplace, organisations are increasingly emphasising the improvement of their female employees' effectiveness and efficiency (Bonesso & Cortellazzo, 2024; Ramdhony et al., 2013), with some investing in training, conferences, and workshops. When pursued with commitment, productivity among female staff tends to increase. It is, therefore, not surprising that institutions such as the United Nations (UN), Organisation for Economic Co-operation and Development (OECD), along with the World Bank, have over the years intensified their efforts and dedication towards activities promoting equal representation for women alongside men, and women's empowerment (Muthuma & Ndunge, 2025). In Ghana, the local government system established under Article 240 of the 1992 Constitution, comprising the Metropolitan, Municipal, and District Assemblies (MMDAs), serves as the most authoritative government body at the community level (Addo-Yobo, 2013), maintaining closer ties with local residents on a daily basis (Amponsaa-Asenso, 2018). The Local Government Act 1993, Act 462, Section 10, Sub-Sections 1-3, grants the Assemblies full responsibility for all development matters across Ghana. One notable development issue involves addressing the barriers that hinder women's successful progress in the 21st-century workplace. Other key initiatives aimed at advocating for women's

inclusion in government and the broader Ghanaian economy include the establishment of bodies such as the National Council on Women and Development at the Ministry of Gender and Children's Affairs (Gyansah & Guantai, 2018) and the enactment of the Affirmative Action (Gender Equity) Act, 2024 (Act 1121).

Scholars have offered reasons that influence women's employment progression. The National Council on Women and Development (NCWD) (2017) have identified family responsibilities as a key issue that hinders female employees' chances of staying relevant at work and progressing in the civil service. Some other identified hindrances that women face in their line of work are preference of a particular gender for higher positions (Ali & Mahmood, 2018), negative cultural expressions directed at the feminine gender (Khan et al., 2024; Gyansah & Guantai, 2018), women's household responsibilities, and affiliations with professional entities (Obimpeh, 2018; Heller, 2017), and female-unfriendly environments (Adetula et al., 2014). Additionally, Coughlan and Patton (2018) pointed out four other salient factors that they describe as "epileptic" that affect female employees' stay and progress at work. These include unfavourable working atmosphere, gender preference for certain positions (glass ceiling), the non-existence of flexible organisational structures and the lack of challenging tasks.

Gammie and Gammie (2019) have indicated clearly that women's career potentials at the local government level are nothing to write home about; one that is grossed with heavy inequalities. This work focuses on the Nabdam District Assembly of the Local Government system of Ghana to explore female employees' perspectives on their career progression.

1.1 Statement of the Problem

In modern times, global workplace policies provide for fair and equitable treatment and career progression for all employees. Subsequently, various national frameworks provide for labour protection. In Ghana, the Republican Constitution, 1992, and the Labour Act, 2000, provide significant legal framework for the protection of all employees irrespective of gender. Literature exists on career development (Gyansah & Guantai, 2018), however, studies on the career progression of women are few (Amponsaa-Asenso, 2018), and outside the context of Ghana. For instance, a study by Ahmad et al. (2024) investigated the career development of women in Pakistan, discovering that cultural beliefs and limited access to education and training opportunities were significant barriers to career growth. Another study by Ali and Mahmood (2018) examined the experiences of women working in the public sector in Pakistan, highlighting various challenges related to gender bias, insufficient support from male colleagues, and restricted access to networking and career development opportunities. A few studies in developing countries have focused on specific professions such as the accounting profession (Amponsaa-Asenso, 2018), to the neglect of female employees' career progression within governmental agencies.

Nonetheless, fair and equitable development of the human resource of every organisation is critical. The local government system established under Article 240 of the 1992 Constitution provides a governmental structure that functions to serve the daily needs of the citizens in the country. As the governmental agency with the mandate and full responsibility for all development matters across Ghana (Local Government Act, 2016), addressing the barriers that hinder women's successful progress in the 21st-century workplace is an uncompromising expectation. One major issue that has been identified in the career progression of women is the "glass ceiling" phenomenon. The glass ceiling refers to an invisible barrier that prevents women (and other marginalized groups) from advancing to higher-level positions within their organizations. This can be due to a variety of factors, including gender bias, discrimination, and a lack of opportunities or support for career development. What remains unclear is how career progression is with female employees, hence, this study examined the female employees' perspectives on the phenomenon of female employees career progression in the Nabdam District of the Ghana Local Government system.

1.2 Research Objectives

- i. Explore female employees' motivations for career pursuit in the Nabdam District Assembly of the Local Government system of Ghana.
- ii. Explore perspectives of female staff in the Nabdam District Assembly of the Local Government system of Ghana.
- iii. Determine milestones of career progression in the Nabdam District Assembly of the Local Government system of Ghana.

II. LITERATURE REVIEW

2.1 Theoretical Review

Insights were drawn from two theories, namely the Resilience and Career Motivation theories, to guide this work.

2.1.1 The Resilience Theory

The theory of resilience, originating in the field of physical sciences, offers us a framework to aid the



understanding of how people respond to challenges to maintain progress. This theory was applied in the field of human behaviour for the first time through the work of Garmezy, who studied how children still succeeded notwithstanding the experiences of significant adversity (Zimmerman, 2013). Resilience was later described by Vella and Pai (2019) as a dynamic process driven by what they termed “ordinary magic”, the daily protective factors deployed by human beings, such as problem-solving abilities, emotional regulation, and positive relationships, to deal with issues they encounter.

In the context of behaviour in organisations and employment relationships, resilience can be analysed at three levels: individual, group, and institutional (He & Wu, 2021). The theory contends that in challenging and complex work environments, personal attributes of individuals in that work environment, such as endurance, adaptability, and self-efficacy, become tools with which they can navigate through the challenges. Similarly, at the group level, employees in an organization can, through collaboration and support from peers and peer networks, navigate through complex organizations challenges. At the institutional level, resilient organisations themselves are expected to possess inbuilt mechanisms such as policies of equity, open leadership and flexibility to enable employees to bloom in the face of challenges. All three levels relate to issues of women's career progression, hence, apply in this work. It is my position that within the local government system of Ghana, and in particular, the Nabdam District Assembly, the elements as identified at both the group and institutional levels are remarkably deficient. Although many female employees display qualities of individual resilience, such as persistence and competence, systemic obstacles of the institutions they work in continue to serve as sources of encumbrance to their career progression. For example, the Auditor-General's Report (2023) revealed that only 5% of eligible women received promotions in the local government sector in Ghana in three years. This provides some attestation to the view that individual resilience alone is insufficient for progress within institutions without institutional support (Zimmerman, 2013). In this regard, it is expected that the Assembly organises career development and capacity building workshops for the employees to provide them with the opportunity of access to mentorship, training, and networking, which are key resources for career progression in organizations.

According to Xiao and Cao (2017), organisational resilience concerns the capacity of the institution to withstand destruction and successfully adjust via proactive planning and inclusive leadership. This calls for institutional support systems such as gender-sensitive policies in the local government system, particularly the Nabdam District, to facilitate equitable promotion and work-life balance. In line with the Resilience theory, it is hereby, argued akin to Vella and Pai (2019) view that personal growth and progress of employees in the Nabdam District is inextricably connected to the institutional support and structures of the Assembly, and that, without mechanisms and support put in place by the Assembly, for the purpose of supporting career development, individual resilience of female employees may eventually falter.

The Resilience Theory is especially relevant to this study because it helps identify both personal and institutional challenges facing female employees' career development within the Nabdam District Assembly. It extends the discussion on resilience beyond innate personal traits of employees to view it as a process involving direct institutional participation that can be promoted through targeted interventions such as mentorship, policy reforms, and inclusive leadership (Farchi & Peled-Avram, 2025).

2.1.2 Career Motivation Theory

Career Motivation Theory, developed by London (1983) and refined by London and Noe (1997), emphasises the motivational dynamics that influence individuals' career-related behaviour. This theory groups career motivation into three, namely: career identity, career insight, and career resilience. It explains career identity as the extent to which one's career is integral to their self-concept; career insight as realistic self-appraisal and goal setting; and career resilience to denote persistence in the face of setbacks. These three elements are relevant in this study as they provide a framework for the understanding of the female employees' motivation for career progression even in the face of institutional and cultural barriers.

Through the Career Motivation theory, we are able to understand and explain how female employees remain committed to their careers through self-driven goals, even when institutional and systemic environments or conditions are awkward (Boonzaier, 2014). Career motivation is critical in sustaining commitment to achieving long-term goals at the workplace. For Campbell and Pritchard (2016), employees' aims for career attainments in the future in the nature of personal fulfilment, promotion, or recognition fuel workers' career motivation. According to Caldwell and O'Reilly (1990), career motivation is driven by desire to achieve future goals determined through the state of the workplace environment. In the Nabdam District Assembly, female staff are required to make career choices amidst limited promotion prospects and a lack of institutional encouragement. In such a setting, intrinsic motivation becomes a critical determinant of professional advancement.

By bringing the Resilience and Career Motivation theories together, we are able to understand how personal attributes of workers and institutional systems, policies and practices shape employees' adaptabilities, career goal framing, and professional behaviours in the Nabdam District of the local government system in Ghana.



2.2 Empirical Review

2.2.1 Career Progression Options in Organisations

Employees generally feel more engaged, especially when they believe their management or employer is supporting the development of their career goals and personal growth (Kim & Beehr, 2017). According to Kim and Beehr (2017), employees consistently rank career progression opportunities as a key factor in accepting or retaining a job. As a result, companies make significant progress to map out career paths for existing and prospective employees. Career pathing, as described by Malhotra et al. (2016), is a process through which employers within an organisation provide opportunities for their employees to assess their personal characteristics, experience, skills, goals, and education, among other things. A career development path is a comprehensive framework that outlines activities employees can undertake to improve their skills and develop their careers, which may lead to transfers, promotions, or appointments in different roles. When effectively implemented, career paths significantly benefit organisations through improved employee performance, increased job satisfaction, high morale, greater responsiveness, and enhanced productivity. Verma (2020) examined the nature of career advancement among women employees in bank branches of Haridwar district in Uttarakhand state. The study, which adopted an exploratory research design and involved 182 women employees through a questionnaire, identified three main dimensions of career advancement: career orientation, future aspirations, and present satisfaction. Hughes (2012), in his study, assessed career advancement among highly qualified women in the mining industry in Canada. The survey study collected both quantitative and qualitative data. He identified two main career paths, namely, the specialist and the corporate.

Over the past two decades, much has been documented regarding the exclusion of women from certain professions. Women's minority status in the corporate world has been described as the 'glass ceiling' (Wirth, 2015). Wirth (2015) defined the glass ceiling as organisational prejudices or attitudinal barriers that prevent women from holding top executive positions within organisations. Several factors have been identified as responsible for this glass ceiling. Gammie and Gammie (2019) indicate that the most significant factor responsible for glass ceiling is gender bias. They noted that in accountancy firms, there appears to be greater discrimination against women compared to men. Men are more likely to hold high-profile positions within the profession, whereas women are often left with menial tasks.

Many governments have recognized the need for equal representation of men and women in all sectors of the economy (Sojo et al., 2016). Through this, some governments have adopted the quota system, where certain numbers of men and women are needed in certain organisations (Sojo et al., 2016; Tsikata, 2018). Though there has been advocacy for women to assume top positions, there is still an underrepresentation of women in most organisations (Sojo et al., 2016). In Ghana, there is a quota system for the appointment of the executives (ministers), and this requires that the majority of them must be members of parliament (Ghana Parliament Hansard, 2019). Unfortunately, there is no such quota system when it comes to the recruitment of women and their subsequent progression in the public service (Tsikata, 2018).

According to Tsikata (2018), the problems of underrepresentation of women at the district assembly require immediate policy intervention. However, the policy intervention should encompass career-related policies geared towards the advancement of the career of female staff. It is worth noting that the Local Government system has no defined career advancement policy to guide staff, much more to specially advocate for women (Tsikata, 2018). However, programmes such as annual durbars, Independence Day celebrations and end-of-year reviews, are used to create opportunities for mentoring and networking. Shwed and Kalev (2014), identified networking programmes and mentoring as some means through which the human capital of women can be enhanced. Mentoring is viewed as a developmentally oriented link existing between a mentor and mentee. In this regard, the mentor is the more experienced person who provides coaching and guidance to the mentee who is less experienced or knowledgeable (Wanberg et al., 2003; Ragins, 1989).

2.2.2 Factors Influencing Career Progression among Women

Probing the factors that influence the progress of women employees in the occupations they work is laudable. Saadin et al. (2016) investigated the barriers associated with career advancement among female public servants at Perak State Secretariat, Ipoh, Malaysia, employing the descriptive survey design of research. Using the cluster technique in sampling respondents, 63 female public servants were engaged in the study. A questionnaire was used to survey the respondents. Results of the study indicated that work-life balance and gender stereotypes accounted for 60% of the changes in women's career advancement. The results further showed that when there is a balance between work and life, female public servants advance more in their careers. A study conducted by Davis (2021) also found that a major factor contributing to women's retention and progression within organizations is the implementation of work-family programs and creating environments that are supportive of women. In another study by Rogier and Padgett (2004), it was found that flexible time schedules have been used for several years due to the belief that they help employees manage work-life balance better. For women, being able to work with flexible time schedules made it easier to balance work and life demands and, consequently, made it easier to progress into upper-level positions. Similarly, Schmidt and

Duenas (2002) found that when women are provided with a supportive work environment, they succeed in their career path. The study found that the primary responsibility for creating a supportive environment rests on organizations.

Hadfield and Sen (2009) examined the success and potential barriers towards the career path of women in academic libraries. Through the feminist perspective, the study adopted the qualitative inquiry approach. The study sampled 12 female library workers through the purposive sampling procedure. Interviews were conducted with females in senior positions in the academic libraries in the UK. The interview data were analysed thematically. The study identified promotion, succession planning, role models/mentors, and confidence/aspirations as positive determinants of career progression among female library workers. Some barriers that hindered the progress of female staff included caring responsibilities, working for long hours, mobility, and a lack of work flexibility. A supportive environment provides workers with friendly workplace policies, but commitment from top management is crucial in implementing such policies. Another factor that contributes to women's development includes mentors. In a study, women executives in the UK and the USA reported that they need the support of mentors to advance (Riley, 2024). Mentor relationships help women advance by providing them with self-confidence and reducing their levels of stress. This was also confirmed by Nelson (2025), who found that especially important is the role of female mentors who provide role models to their protégés, helping them cope with discrimination, stereotyping, family/work balance, and social isolation.

Raja (2016) explored the factors responsible for career progression among women in management positions in universities in Pakistan. The study, which was qualitative in nature, deployed interviews and focus group discussions with 48 women holding both top and bottom management positions in universities in Pakistan. Results of the study revealed gender stereotyping, mobility, and perception of patriarchal society as factors influencing career progression among women employees in universities in the country. The findings showed that Pakistan was perceived as a patriarchal society; therefore, females were not so much considered for leadership and management roles. This culture really hindered most female employees from assuming top management positions in universities in the country. Mihails (2018) examined the factors associated with successful career paths among women at the Jelgava Regional Department of the State Employment Agency and Zemgale Regional Department of the State Police, Latvia. The study adopted the descriptive survey design, where 39 women employees at the aforementioned institutions in Latvia. In gathering data from respondents, a questionnaire was employed. The study revealed that roles in life, family and related duties, employment, traditions and stereotypes affected the choice and progression of career among women. In a descriptive design and stratified sampling techniques, Komiti and Moorosi (2020) on his part investigated the factors influencing career progression among women in Lesotho. One hundred (100) women were selected from selected parastatals in Lesotho. Both numerical and qualitative information were collected. It was found that constraints arising from family responsibilities, inequality in pay and training, sexual harassment, lack of mentoring and coaching, job characteristics, and glass ceiling impeded career progression of women in the country.

Again, Pillay-Naidoo and Vermells (2023) assessed the challenges and barriers female workers in executive positions face in Peru. It was a descriptive study that used the purposive technique of sampling to engage 24 female employees, comprising 11 females and 13 males. Information was obtained through an interview. It emerged from the study that females faced four main challenges in advancing through their careers. These included education and experience, family responsibilities, organizational culture, informal structures and public resources. In a related study, Amponsaa-Asenso (2018) assessed the barriers associated with career progression among women in the profession of accountancy in Kumasi. The study, which was descriptive in nature, surveyed 48 female accountants through the purposive technique of sampling in research. Questionnaires were used for collecting female accountants' data. It emerged from the study that factors such as long hours of work, discrimination in promotion, childcare and family responsibilities, heavy workload or paperwork, and poor work environment hindered the progress of female accountants. The ability to manage the demands of work and family effectively is undoubtedly the greatest hurdle for women in their careers (Kim & Beehr, 2017; Still & Timms, 1998; Mainiero & Sullivan, 2005). Notably, one major debatable view about women's career needs is the fact that women are burdened with numerous household duties compared to men (Van Oosten et al., 2017), which may likely curtail the successful acquisition of education and professional development opportunities (Obimpeh, 2018).

Continuous professional development through education is a major prerequisite for occupying top organizational positions (Tharenou, 2017; Wirth, 2015). This is usually so because such positions require top managers to exhibit a high level of quick independent decisions that are critical for the organisational efficiency as a whole. Meanwhile, it has been established that female employees are faced with issues of less educational and occupational opportunities as well as training programmes that facilitate and enhance their professional practices (Cheung & Halpern, 2010; Morley, 2014; Joshi & Dhar, 2023). Burke (2017) found that access to education, training, and development are part of the challenge to support women's advancement in organizations. Specifically, access to formal management training programs, access to the appropriate and relevant training, tailoring training to the needs of women, and training in gender equity are believed to be factors that positively influence women's advancement in organizations. Agherdien et al. (2024) found that organizations that maintain cultures that promote gender equity are more likely to have an



increasing number of women in management positions. Agherdien et al. (2024) further indicated that since organizations are based on norms, beliefs, attitudes, and assumptions, which in turn influence organizational practices, tacit norms, and values, a gender-friendly would promote career progression among women.

Scholars have also asserted that informal networks may also hinder the engagement of women in top executive and high-profile managerial positions (Tharenou, 2017; Hynd & Broadbridge, 2018; Ragins, 1989; O'Neil & Bilimoria, 2015), as they are known for not involving themselves with more informal networks for the risk of sexual abuse and/or workplace romance. However, Morley (2014) interprets the creation of an environment of avoidance through informal networks as a barrier to promotion. Morley is of the view that women, in most instances, create several heterogeneous networks, and this hinders them from attaining high-profile positions, while males, on the other hand, establish a uniform network.

Acker and Haque (2017) encourage women with local government systems who want to progress through the ranks at municipal assemblies to actively engage in politics. To Acker and Haque (2017), local government is an important avenue for getting practical experience for participation in politics before moving to the national arena. Advocates of decentralisation argue that it opens up avenues for women to articulate their interests, to enter arenas of political decision-making, and to advance women's interests. However, studies by Agherdien et al. (2024) show that women's representation in local government does not guarantee that they will have any substantial influence over policy decisions, or that they will articulate women's interests, but, it depends on the incentives facing them as representatives. They add that it requires a conscious and deliberate action on the part of the women to make a difference.

Gender stereotypes and male values and patterns largely dominate organisational cultures (Hynd & Broadbridge, 2018; Joshi & Dhar, 2023; Ragins, 1989). Due to the effect of these stereotypes, many people still believe that the best managers are males (Powell & Butterfield, 2022). Ragins (1989) had attributed this to stereotypes regarding managerial skills. Again, O'Neil and Bilimoria (2015) argue that female talents and skills are unappreciated and frowned upon by many organisations due to stereotyping, with many organisations appreciating patterns of behaviour associated with male such as assertiveness and competitiveness (Festing et al., 2015), which makes career progression challenging for women.

III. METHODOLOGY

3.1 Study Area

The Nabdam District Assembly, like any other assembly in Ghana, plays a pivotal role in public service delivery and employment, making it a strategic location to examine how organizational and cultural factors mobility. Preliminary observations also indicated that although women were increasingly present in the workforce, their progression into leadership roles remained inconsistent. This made the Nabdam District relevant for exploring the barriers and opportunities shaping women's professional growth in local governance. Participants were informed about the purpose of the study and they offered consent orally before taking part in the interviews (Brinkmann, 2022; Guillemin et al., 2018).

3.2 Research Approach

The qualitative research approach was deployed to deeply investigate the phenomenon of female employees' career progression in the Nabdam District in the Upper East Region of Ghana. A qualitative study emphasis on exploring the depth and richness of human experiences, allowing for a nuanced understanding of the phenomenon under investigation (Creswell & Poth, 2018). This approach allowed for a meaningful engagement with the complexities of the career progression of women in the Nabdam District with the aim to capture the subjective perspectives, perceptions, and social constructs that shape their professional journeys. This approach aligns with the interpretivism philosophy. Interpretivism, as noted by Creswell (2022), emphasizes the subjective nature of human experiences and recognizes that reality is socially constructed. This paradigm was particularly well-suited for exploring the complexities of women's career advancement, as it allowed for an in-depth examination of their lived experiences, perceptions, and the social constructs surrounding their careers. The subjective nature of career progression, influenced by cultural nuances and organizational contexts, makes interpretivism an apt choice for this study.

3.3 Research Design

The case study design, a methodological approach that allows for an in-depth exploration of a specific phenomenon within its real-life context, was deployed. As emphasized by Yin (2018), a case study design is particularly advantageous when the research aims to investigate a contemporary phenomenon within its natural setting, providing a holistic and detailed understanding of the complexities involved. In the context of examining the career progression of women in the Nabdam District, the case study design enabled a focused investigation into the uniqueness of women's professional advancement within the local government sector in the Nabdam District. Given the localized nature of the



study area, the case study design was well-suited for capturing the dynamics of women's career progression within the Nabdam District. The case study design is rooted in the constructivist philosophy deployed to explore the experiences of female employees with career progression in the Nabdam District. The constructivist case study design aligns with the study's focus on meaning-making, contextual understanding and the socially constructed nature of career progression of female employees at the Nabdam District Assembly of the Ghana Local Government system. The various perspectives on the factors of motivation for career pursuit of females, their perspectives on career progression, and the milestones of career progression of female staff in the Nabdam District Assembly of female career progression were explored for purposes of understanding this critical issue of gender equity within the local government system of Ghana (Eisner, 2020). The guided enquiry session allowed participants to freely express their perspectives on the issues of female career progression in the Nabdam District of Ghana (Nussbaum, 2017).

3.4 Study Participants

The sample size for this study was 15 participants drawn from the 29 female employees in the Assembly. Both junior and senior female staff were included to obtain a comprehensive perspective on career advancement within the Assembly. These participants were considered valuable for this study because of their insight due to their employment in the Assembly and how they experienced career progression within the organisation of the period they worked with the Assembly as employees. In addition to the female participants, one male staff member, the Head of Human Resources (HR) was purposively engaged in a one-on-one interview. His inclusion was strategic to help confirm, contrast and contextualise the findings obtained from the female participants. As the officer responsible for managing recruitment, promotion and development processes, his perspectives provided a critical administrative lens through which to assess institutional practices and gender dynamics. This approach is intricately tied to a commitment to prioritizing the quality and depth of data over sheer quantity (Saunders et al., 2023).

The 15 participants were selected through the principle of data saturation, a concept commonly associated with qualitative research. Data saturation occurs when additional data collection no longer yields new insights or information, indicating that the research has achieved a sufficient depth of understanding regarding the phenomenon under investigation (Guest et al., 2006). Data saturation was reached on the 12th to 14th participants, where subsequent interviews did not provide any new emerging themes (Guest et al., 2022). As a result, the sample size obtained was fourteen (14), which aligns with the data saturation principle espoused by Constantinou et al. (2017) and Hennink & Kaiser (2022). The sampled participants provided rich information, which foregrounded the construction of knowledge on female employees' progression at the Nabdam District Assembly (Tisdell et al., 2025).

The purposive sampling technique, a non-probability method characterised by the intentional selection of participants based on specific criteria, was used to constitute the sample for the study. Purposive sampling allowed the researchers to target female employees and the Head of Human Resources in the Nabdam District for gaining in-depth insights into the phenomenon under investigation (Palinkas et al., 2015). In the context of exploring the career progression of women in the Nabdam District Office, purposive sampling is justified as it enabled the intentional selection of participants with diverse roles, experiences, and perspectives within the local government sector.

3.5 Data Collection Instrument and Trustworthiness

This study deployed semi-structured interviews as the main source of data. In this study, a semi-structured interview was used to gather detailed insights into the career progression experiences of women in the Nabdam District Office. Both senior and junior female staff members in the Nabdam District Office were selected for the one-on-one semi-structured interviews. These participants were chosen for their extensive experience and deep insights into career progression within the organization. The semi-structured format allowed for a guided conversation with the flexibility to explore participants' unique perspectives and experiences in depth. An interview guide was meticulously developed to facilitate the semi-structured interviews and ensure consistency and depth in the data collection process (Creswell, 2022). The interview lasted for about 45 to 60 minutes.

To ensure the trustworthiness of the data, participants were given the opportunity to review and validate their interview transcripts to ensure that their views were accurately captured. Probing questions were used during interviews to elicit deeper insights and reduce superficial responses. Reflexive notes were kept throughout the study to monitor the researcher's positionality and influence on the interpretation of data. In addition, participant quotes were used extensively to support the themes that emerged, reinforcing the objectivity and neutrality of the analysis. Through these measures, the study ensured a high level of trustworthiness, allowing the findings to offer credible and meaningful contributions to understanding how Social Studies education prepares students for the visible and hidden dimensions of university life.

3.6 Data Analysis and Ethical Considerations

Braun and Clarke (2006) six-phase thematic analysis framework was adapted to analyse the data. First, the



researchers engaged in familiarisation with the data by reading and re-reading all interview transcripts to gain a deep understanding of participants' views. Notes were made on initial impressions and recurring ideas that appeared significant to the research questions. Secondly, initial codes were generated manually from the data. This involved systematically identifying and labelling key features in the transcripts that related to the motivations for females career pursuit with the Nabdam District Assembly, female employees career progression in the Assembly, and milestones of career progression within the Assembly as raised by participants. In the third phase, the codes were reviewed and grouped into potential themes. Similar codes were clustered together, and emerging themes were named based on the underlying ideas they represented. At this stage, themes were provisional and subject to revision.

The fourth phase involved reviewing the themes in relation to the coded data and the full data set to ensure coherence, relevance, and clarity. Some themes were merged or refined to avoid overlapping and to better represent the meanings embedded in the data. In the fifth phase, each theme was defined and clearly named. The researcher wrote analytical summaries that captured the essence of each theme and carefully connected the findings to the research objectives. The themes were refined until they offered a comprehensive explanation of the patterns observed. Finally, in the sixth phase, the themes were reported and supported with direct quotations from the participants.

To ensure confidentiality and anonymity, participants' identities were protected, allowing them to respond without fear of being identified (Kaiser, 2022; Saunders et al., 2023). Additionally, participation was entirely voluntary, and respondents were assured of their right to withdraw from the study at any time without repercussions (Wiles et al., 2022). These measures ensured that the study was conducted with integrity and respect for the rights and privacy of participants, fostering a sense of trust and openness in their responses (Iphofen & Tolich, 2023).

IV. FINDING & DISCUSSIONS

4.1 Findings

Outcomes from this study are presented on three themes including the motivations for female employees' pursuit of careers, female staff's perspectives on career progression, and the milestones in career progression in the Nabdam Assembly.

4.1.1 Female Employees' Motivations for Pursuing a Career in the Assembly

Appreciating the motivations of the female employees in the Assembly would help to understand the things that sustained their desires in the face of challenges and obstacles. The motivation of the female workers boarded on issues such as personal and family sustenance, service to humanity, self-fulfillment, and professional growth. A female staff had this to say:

I have the urge to contribute to shaping public policy, have a say in the direction of our services delivery. We have limited resources available to meet the many needs of the people in our society; some people must be in the front line at a time to take charge of decisions on how to effectively and appropriately utilize the resources. I am inspired by that need to keep working with the Assembly (Participant 12, Human Resource Dept., 7th September, 2024)

Another female staff had this to say:

"I continued working as an accountant with the Local Government because I have to be relevant; hence, I have to secure my future. I have a responsibility to take care of my children, my parents and myself. To be able to discharge this responsibility satisfactorily, I have to have a secured employment in an area that I render services to ordinary people on daily basis. In that way, I can earn income to help sustain my family, and the Local Government sector comes handy" (Participant 8, Accounts Dept., 7th September, 2024).

Another female staff indicated:

"I am inspired by my aunt who worked as an internal auditor in different Assemblies in the Local Government sector. I saw how respected she was, and I wanted to follow that path so that I will also contribute to projecting the image of the family in society. Besides, I also needed a job to take care of myself and support my family" (Participant 3, Internal Auditor Dept., 7th September, 2024).

An administration department staff said:

"I chose administration because I wanted to contribute to shaping public policy and make positive impact in society. The stability was appealing, yes, but it was more about having a say in the direction of our services. Career growth came as a bonus" (Participant 10, Administration Dept., 7th September, 2024).

The perspectives expressed by the female staff also reveal their motivations to pursue careers in the Assembly were for opportunities for financial stability, and personal fulfillment. This means that, to the female staff, their motivation to pursue their career meant having something to do and earn a living from to take care of themselves and their families. It can be ascertained from these views that, in the Nabdam area of Ghana, women play significant roles in providing for their families. The women do accept that caring for the economic, educational and health needs of



children is not just the duty of men. This diffuses the traditional notion that men are the providers of the family needs while women are for domestic responsibilities, a notion which has over the years served as a restriction to their access to education. This finding aligns with Nabi et al. (2018) report of women contributing to the food, security, and health needs of their families in Zimbabwe, childcare and nurturing (Chance & Abdoul, 2025; Lindvert et al., 2024; Schmidt et al., 2024). Again, an interesting element of the motivation for the pursuit of career was the desire to provide public services. This means, the female employees had a good appreciation of the work of Assemblies in providing goods and services at the grassroots level.

4.1.2 Female Staff in Nabdam District Perspectives on Career Progression

Female staff in the Nabdam District Assembly offered their perspectives on what career progression meant to them. To many of the female staff, career progression is not merely about titles, but a course towards competence and impact. A female staff had this to say:

“Career progression is not just about climbing through ranks or positions in the institution, but, the building on one’s knowledge, skills, and gaining satisfaction with the work. Career progression for me is about obtaining professional growth and personal fulfilment. It comes with new goals and new responsibilities regardless there is a change in rank or not.” (Participant 1, Administration Dept., 8th September, 2024).

“Some other female staff members in the District generally perceived career progression as an achievement through effort, perseverance, and navigating barriers. One female staff member expressed this as follows: Career progression means breaking barriers and overcoming challenges that come my way. It is about proving my capabilities and achieving recognition for my contributions” (Participant 2, Internal Audit Department, 8th September, 2024).

In the opinion of another female staff:

“It is about the opportunities to grow and advance within the organization. Career progression means having a clear path to move up the ranks and achieve higher positions through merit and hard work” (Participant 11, Accounts Department, 8th September, 2024).

The viewpoints as expressed by the female staff in the Nabdam District reveal some distinct perspectives on career progression. For many of the female staff, career progression meant professional growth but not necessarily climbing on the ladder of positions. From this standpoint, career progression is a hard-earned satisfaction often emanating from initiations self-initiated undertakings but not always the result of structured support from the Assembly. These perspectives reveal there is always a demand from female staff a sense of resilience, self-determination and strategic positioning.

This conceptualisation of career progression is at variance with the regular conceptualisations. It deviates from the description given by Van’t Foort-Diepeveen et al. (2017) that career progression is moving forward, being promoted, finding new challenges, new employers, new opportunities and getting the most out of one’s career. Similarly, it deviates from the notion that career progression involves steadily climbing the career ladder from the base to the apex in the profession by Gyansah and Guantai, (2018). Their conception of career progression has more to do with the individual; the individual finding new knowledge and skills to effectively balance professional and personal development and fulfilment. This conception of career progression by the female staff shares a reflection with Heller (2017) analysis that career progression described as a linear path in one’s career better suits men more than women employees.

Secondly, the perspectives on career progression by the female staff reflect the idea of work-life balance. It can be argued that their appreciation of career progression was largely influenced by their cultural environment, where the success of a female in career is to be seen or is to reflect in their abilities to obtain livelihood supports to discharge of their duties in the society especially to their family.

4.1.3 Milestones in Career Progression in Nabdam District

Female staff in the Nabdam District expressed opinions on the factors that enhanced their career progression trajectories within the Assembly. They indicated that diligence, learning new skills, and visibility to leadership were ingredients for progression in their career as female employees in the Assembly.

“Eventually, the results of my dedicated services got me noticed by my boss. Thereafter, my potentials were tapped for the growth of the organization. This was followed by more assignments and subsequently a promotion. But that came after a long period of remaining at the same position and delivering on my duties” (Participant 8, Budgetary Department, 8th September, 2024).

Another female staff also expressed an account of career progression for her in the District as follows:

“It was not long after I had completed the weekend program of study I signed up for in the university. I should say investing on furthering my education opened the doors to my promotion for me. Yes, that was how the doors opened for me” (Participant 9, Administration Department, 8th September, 2024).



Another female staff said:

“Despite only having a General Certificate Examination, Ordinary Level (GCE O’Level), I have been working in operations for 23 years and rose to become the Chief Radio Operator. It was not through formal training but through demonstrating consistent performance and reliability” (Participant 25, Operations Department, 8th September, 2024).

These accounts suggest that though female staff got promoted to higher ranks in their careers with the Assembly, personal initiatives, educational advancement, and consistent perseverance served as the fountain. As a result, many female staff expressed a desire for clearer guidance, mentorship, and structured induction programmes to aid their early progression. Others spoke of their promotions as gradual recognitions of accumulated experience, often informal, and dependent on visibility, informal networks, and recognition from superiors, rather than standardized performance metrics. Female staff had to contend with gender biases and navigate institutional politics by adopting hyper-resilient strategies. This reflects the “double bind” where women leaders are penalized for assertiveness yet viewed as weak when collaborative (Van’t Foort-Diepeveen et al., 2017; Izquierdo & Fabra, 2024). This support calls for mentorship and female role models (Izquierdo & Fabra, 2024; Lingappa & Rodrigues, 2023).

4.2 Discussion

The findings from this study present significant issues to enhance the issue of female staff progression, especially in the Nabdam District of the Local Government system of Ghana. Firstly, it emerged from the study that female staff’s desire to contribute to public service was a huge motivation for them in their career lives. This shows that in the face of many challenges, the desire to provide public service in service to humanity came across as an intrinsic motivation for their career pursuit. This shows that motivations evolve over time from the need for survival, care for family and security, to public service and legacy for the female staff in the Nabdam District. Unarguably, providing women with opportunities, coupled with their motivation to succeed in their chosen professions, provides society with benefits from their skills, knowledge, and contributions to the workforce. It also holds a huge potential for significant influence and change in the conduct of affairs in the local government system of Ghana. The career motivations of the female staff in the Nabdam District was largely influenced by their cultural environment that sees the success of a woman measured in the achievements or successes they make in performance of their responsibilities as mother and wives. As Lingappa and Rodrigues (2023) would argue, modification in social norms, access to education, improved technology, and contemporary fertility options available to women have reshaped them from performing traditional roles in family care to contributing significantly to broader society at regional and international levels. Women in contemporary times have arisen to task of exerting their relevance in local, national and international spaces dismantling stereotype gender roles and expectations that subscribe them to domestic family roles.

The perspectives on career motivation by the female staff in the Nabdam District reflect the Career Motivation theory by London and Noe (1997), which accentuates that a person’s career identity is integral to their self-concept and Campbell and Pritchard’s (2016), assertion that career motivations are shaped by individuals’ expectations about future outcomes such as recognition, societal impact or personal fulfillment. The desire in women to play central role in public leadership, service provision, resource management and change stories motivated the female staff in the local government system in Nabdam. This is attributable to the influence of formal education, modernization and the realities of the demands of survival in contemporary times. This development is appreciated when viewed from earlier studies that indicate that social, cultural, and economic barriers that obstructed female employees’ career successes (Ali & Mahmood, 2018; Gyansah & Guantai, 2018; Obimpeh, 2018).

Though career progression is a reality in the Nabdam District, it only actualizes for individual female staff who have gone out of the regular schedules to take on some self-assigned tasks and demonstrate abilities of success. This position presents career progression as a product of self-driven resilience and adroit navigations of institutional policies. It is hereby concluded that the female staff saw career progression as a survivalist approach to career advancement (Evetts, 2000). Nonetheless, female staff face a lot of challenges in balancing their professional and personal responsibilities (Budig & Misra, 2010; Koekemoer, et al., 2023). This corresponds with Izquierdo & Fabra (2024), position that women face personal barriers, such as balancing family and work and systemic challenges at their places of work in the attempt to progress. Meanwhile, relying on individual resilience for career progression in the local government system will place huge responsibility on female staff to adapt (O’Neil & Bilimoria, 2015; Ahmad et al., 2024).

Furthermore, it has emerged from the perspectives of the female staff in the Nabdam District that personal ambition is a key driver for female staff, especially those who associate career progression with professional growth and increased visibility. However, female staff’s personal ambitions are often hindered by systemic challenges. To the female staff, unclear promotion pathways and insufficient mentorship opportunities limit their ability to convert ambition into actual career advancement. This aligns with research findings that while women’s career motivations are strong, they often clash with structural obstacles (O’Neil & Bilimoria, 2015); Ahmad et al., 2024; Koekemoer et al.,



2023). For example, personal resilience and grit are important for overcoming workplace difficulties, yet their impact depends largely on the availability of institutional support (Pillay-Naidoo & Vermeulen, 2024).

In addition, there is a disconnect between formal institutional policies and informal workplace practices in the Nabdam District Assembly relative to career progression for females. It can be deduced from the female staff perspectives that although promotion procedures exist, informal networks and departmental biases influence more when it comes to female staff progression in the Nabdam District Assembly. This holds a significant potential to override merit-based advancement. This situation mirrors the observations in public administration where formal hierarchies coexist with informal power structures that disadvantage women (O'Neil & Bilimoria, 2015). For instance, De Widt and Panagiotopoulos (2018) found that informal networking in local government settings often leads to exclusionary practices, especially when decision-making circles are dominated by entrenched male groups.

This work highlights two main perceptions of career barriers by female staff in the Nabdam District. While some tend to attribute stagnation to systemic issues like unclear promotion criteria, others contend that interpersonal challenges such as office politics serve more as barriers to career progression for women. This contrast echoes broader gender studies debates, where younger women see external structural factors as primary obstacles, whereas older cohorts internalise these as personal challenges (Ahmad et al., 2024; Izquierdo & Fabra, 2024). These differing perspectives underscore the need for comprehensive interventions addressing both institutional and interpersonal gender biases. Women's career progression issues are unique and dynamic in the Nabdam District of the local government system. According to Nabi et al. (2018), career progression is a key concern for women in the workplace due to the fact that they often have to battle with issues such as personal goals, professional skills, organizational support and culture (Gunawardane & Lobo, 2019); gender inequalities (Wirth, 2015); and the lack of mentorship and networks (Higgins & Kram, 2001) that limit their capacities to advance in the careers.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study on women's career progression at the Nabdam District Assembly reveals persistent structural, institutional and socio-cultural barriers that limit women's upward mobility, particularly into senior and technical roles. Despite an increasing number of women attaining bachelor's degrees and demonstrating ambition and resilience, their advancement remains hindered by opaque promotion systems, limited access to mentorship and professional development, entrenched gender biases and a lack of representation in decision-making and technical departments.

This work reinforces and extends the concept of intersectionality as a source of hindrance to career progress for female staff in the Ghanaian public sector, showing how institutional, cultural, and individual factors account for the literal exclusion of females from career progression within the Nabdam District Assembly of the Ghana local government system. This places gender inequality as a product of both structural and agency-related dynamics. The findings from this study also underscore the importance of organizational culture and informal networks, which theories increasingly recognizes as central to understanding women's career trajectories.

5.2 Recommendation

Practically, the study points to the urgent need for institutional reforms within the Nabdam District as well as other Assemblies. These include implementing structured mentorship programs, transparent and merit-based promotion criteria, and regular gender-sensitization training for leadership. Affirmative action mechanisms must be enforced to address systemic imbalances, particularly in technical and senior roles. Work-life balance policies and recognition systems should be mainstreamed to support women's dual roles and enhance retention and motivation. For the broader public sector and related industries, the findings signal that gender equity is not only a matter of social justice but also of organizational effectiveness. The study contributes to the growing body of empirical evidence on gender disparities in Africa's public sector, offering context-specific insights from the Nabdam District of Ghana. In all, the study demonstrates that advancing women's careers in Ghana's public sector requires a dual approach: robust institutional reforms and deliberate cultural change. Only by addressing both structural and attitudinal barriers can organizations create an equitable and supportive environment where women can fully realize their leadership potential. The implications extend beyond the Nabdam District Assembly, offering a blueprint for similar institutions seeking to translate gender equity policies into tangible progress.

Declaration of Interest

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The impact of informal justice systems on access to justice for marginalised communities in Patte Island, Lamu county, Kenya

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ABSTRACT

This study focused on the impact of informal justice systems on access to justice for marginalised communities in Patte Island, Lamu County, Kenya. It was necessitated by the need to examine the existing informal justice systems used on Patte Island, evaluate their effectiveness in resolving disputes, and analyse their perceptions compared to formal justice systems. Although previous studies have examined informal justice systems, this study is unique in its focus on culturally resonant, context-specific, and often primary justice access points where formal justice systems have failed. It presents both the positive aspects and the significant risks associated with informal justice systems. It bridges the gap between expectations and lived realities, navigating the complex interplay between informal and formal justice systems. The study adopted a mixed-methods research design combining a qualitative case study and quantitative surveys anchored on legal pluralism theory and the access to justice framework theory. The target population was the residents of Patte Island aged 18 years and above. The respondents were police officers, prosecutors and chiefs who were purposely selected. Other respondents were randomly selected, and they included religious leaders, community elders, community paralegals, and residents of Patte Island. The total sample size was ninety (90) respondents. Data was collected through interviews, focused group discussions, structured surveys and observations. The instruments used for the study were interview schedules and a standardised questionnaire. Quantitative data was analysed using the Statistical Package for Social Sciences (SPSS). In contrast, qualitative data was analysed by interpreting responses and aligning them to form identifiable themes and actual narratives. Findings indicated that the existing informal justice systems were chiefs, community elders, religious leaders, community paralegals, and the Bajuni council of elders. These systems relied heavily on Sharia law and local customs to solve disputes and were found to be effective due to accessibility, affordability, and familiarity. Despite the challenges of human rights violations and male dominance, the informal systems were filling a gap left by the absence of a formal justice system. The findings implied that informal justice systems were the primary and most embraced means of accessing justice for the residents of Patte Island. The study suggests that informal justice actors should be trained and given more power in professional mediation, human rights, and national laws, while still respecting the values and needs of local informal justice systems. It also recommends strengthening the collaborative approach where informal and formal systems complement each other.

Keywords: Access to Justice, Informal Justice Systems, Marginalised Communities, Patte Island, Lamu

I. INTRODUCTION

In many parts of the world, indigenous courts, councils of elders, and similar traditional authorities play a central role in resolving disputes. Informal justice systems have recently received much attention among rule-of-law theorists and practitioners. Kariuki (2007) defines them as a variety of institutions that serve to resolve disputes and relate to social practices distinct from official state policy. Kerrigan et al. (2012) posit that informal justice systems may be run by traditional or religious authorities, elders or other respected community members. They are informal in that they employ non-state methods of conflict resolution. Nonetheless, they may be obliged to adhere to the law of the state.

According to Kerrigan et al. (2012), informal justice system is the resolution of disputes and the regulation of conduct by adjudication or the assistance of a neutral third party that is not a part of the judiciary, as established by law and/or whose substantive, procedural or structural foundation is not primarily based on statutory law. According to Kariuki (2007), informal justice systems are also often referred to as “community”, “traditional”, “indigenous”, “customary”, “non-state”, “non-formal” or “non-official” justice systems. He adds that they have, for a long time, operated outside the formal justice system, without adequate recognition or legal protection. According to the United Nations Development Programme [UNDP] (2004), in many developing countries, around 80% of cases are resolved through such mechanisms. Informal justice systems tend to address a wide range of issues of significant concern to the



people, including personal security and local crime; protection of land, property and livestock; resolution of family and community disputes; and protection of entitlements, such as access to public services.

According to Röder (2012), informal justice systems can be regarded as part of the overall governance system, with many observers citing the practical needs of rural populations as a key factor in explaining their popularity and functionality. He adds that in large geographical areas, informal justice institutions are the only choice due to the absence of the state. In situations of armed conflict, informal justice institutions often become more important due to the breakdown of formal court systems. In post-conflict societies, they can play a crucial role in the stabilisation and reconciliation process (Röder, 2012).

According to Kariuki (2007), informal justice systems have a huge potential for enhancing access to justice, strengthening the rule of law and bringing about development among communities. He further states that they promote and achieve social justice and inclusion, particularly among groups excluded from the formal justice system. Their recognition is also borne out of the increasing acceptance of their validity and legitimacy of their adjudicative power, which is home-grown, culturally appropriate, easily acceptable by the communities, and operates on minimal resources (Kariuki, 2007).

1.1 Statement of the Problem

Access to justice is a fundamental human right and a pillar of the rule of law in democratic societies. Even though national constitutions and legal frameworks often promise equal access to formal justice systems for all citizens, these systems frequently remain inaccessible, costly, and culturally unsuitable in many marginalised rural areas like Patte Island. According to UNDP (2025), formal justice mechanisms commonly face challenges such as geographic remoteness, high expenses, complex procedures, language barriers, case backlogs, and widespread distrust among local populations. As a result, most community members rely primarily on informal justice systems to resolve disputes. These informal systems provide benefits including speed, affordability, cultural relevance, and the capacity to restore social cohesion within communities (Mumbi, 2015). However, heavy dependence on informal justice systems poses significant risks and challenges. Research shows that these systems are not a universal solution and often mirror existing power disparities and discriminatory social norms, disproportionately disadvantaging groups such as women, children, and ethnic minorities (Ahmad & Von Wangenheim, 2021).

There have been reports of human rights violations where informal justice systems enforce norms conflicting with national and international human rights standards, especially concerning gender equality and children's rights. Critics highlight the absence of procedural safeguards due to the lack of documented, standardised processes, which may result in arbitrary rulings and abuse of authority by local leaders. Vulnerable groups, particularly women, may be excluded from participation as litigants or witnesses because of intimidation or the lack of privacy in addressing sensitive matters like domestic violence. Excessive reliance on non-state actors can undermine state authority, risk the abdication of state responsibility, and create parallel justice systems that discourage engagement with formal institutions, thereby impeding state-building efforts. Despite the widespread acceptance and use of informal justice systems, a significant gap in knowledge and practice remains regarding their actual impact on the rights and welfare of marginalised populations. A detailed understanding of the interplay between formal and informal justice systems is essential to design effective interventions and policies that maximise the benefits of informal mechanisms while minimising their adverse consequences. Consequently, this study seeks to examine the specific impact of informal justice systems on Patte Island, Lamu County, to develop strategies for harmoniously integrating them with formal justice structures to improve access to justice for all.

1.2 Research Objectives

- i. To examine the existing informal justice systems used as a means of enhancing access to justice in Patte Island, Lamu County.
- ii. To evaluate the effectiveness of the existing informal justice systems in resolving disputes in Patte Island, Lamu County.
- iii. To analyse the perception of informal justice systems compared to formal justice systems in Patte Island, Lamu County.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Legal Pluralism Theory

This theory was proposed by John Griffiths in 1986. According to Griffiths (1986), legal pluralism is the presence of two or more legal systems within the same social field. This is the dominant feature of most legal orders worldwide (Swenson, 2018). This theory is relevant to this study because it challenges a state's claim to a monopoly on



the legitimate resolution of legal disputes and the ideal of the uniform application of the law. Rather than state-written law, the theory emphasises a “bottom-up” understanding of law, focusing on the “living law” that people actually use in their daily lives. It advocates the use of different types of law to address different types of disputes. The theory analyses the complex and fluid interactions between different normative orders, which can be cooperative, complementary, competitive, or even combative (Swenson, 2018). This theory, therefore, recognises the coexistence and interaction of the formal justice system and multiple informal justice systems within the same social field. It views the informal justice system not merely as an alternative but as the foremost, primary, living law for many communities (Swenson, 2018).

2.1.2 Access to Justice Framework (People-Centred Approach)

The World Justice Project, the United Nations Development Programme, and the International Development Law Organisation were the proponents of this theory. According to UNDP (2025), this theory focuses on the ability of all persons, especially the vulnerable and marginalised groups, to seek and obtain redress for grievances through impartial and effective mechanisms. It highlights barriers within formal systems (cost, distance, language) that push people towards informal justice systems. The approach ensures that people’s rights, needs, perspectives, and experiences drive the transformation of justice systems and their institutions to serve the people better, especially the most vulnerable, marginalised, and those at risk of being left behind (UNDP, 2025). It is relevant in this study because it is used to evaluate the effectiveness, affordability, and accessibility of informal justice systems from the perspective of the marginalised communities and to identify existing justice gaps. This theory promotes a broad understanding of justice and seeks to address the wider contextual factors that influence people’s ability to access and experience justice. It emphasises how justice systems can be more responsive to the needs of people and communities. These needs extend beyond legal and human rights to ensuring access to fair and just outcomes (UNDP, 2025).

The nexus between the two theories is that legal pluralism theory provides the underpinning understanding of society that makes a people-centred access to justice approach to informal justice systems both practical and necessary. The people-centred approach, in turn, offers an empirical framework for engaging with the complex realities described by legal pluralism, aiming to leverage the advantages of the informal justice system while addressing its shortcomings from the perspective of the justice seekers who are the end users. Eventually, a people-centred access to justice approach, grounded in the practical realities of legal pluralism, seeks to achieve comprehensive and effective justice by recognising, understanding, and constructively engaging with the diverse informal justice systems people rely on. By using these theories, the study will move beyond simply describing informal justice systems to critically analyse their benefits and limitations, and their overall impact on securing justice and rights for marginalised people in Patte Island.

2.2 Empirical Review

2.2.1 Existing Informal Justice Systems in Kenya

According to Chopra (2008), marginalised areas in Kenya face neglect in both governance and development. The poor infrastructure, harsh environment, navigation challenges and illiteracy render these areas almost inaccessible, making their development a difficult undertaking. Competition for natural resources, clan or family conflicts, inter-village conflicts, differing values, economic and social-political issues, land conflicts and crimes are some of the causes of conflicts found in these areas. The laws of Kenya have established the judiciary as the primary body for resolving conflicts between individuals, within communities, and between citizens and the state. However, in marginalised areas, the judiciary only plays a marginal role in addressing local conflicts. Several existing informal justice systems are utilised to resolve conflicts. The following systems are not specific to a particular community, but those that the researcher considers universal in many, if not all, marginalised communities. Most of them are used independently or in conjunction with those that are specific to a community.

Chiefs and assistant chiefs fall under the purview of national government administration officers, and one of their mandates is to maintain law and order in their community. While they are civil servants, they usually originate from the communities they serve. This provides them with background knowledge of the sources of conflicts within their areas. They often receive reports of property disputes, domestic disputes, and all other kinds of conflicts. The chiefs may then summon the parties involved and, after discussions, make appropriate decisions. They may or may not decide to involve the area elders. According to Chopra (2008), in complicated disputes, Chiefs often have no choice but to pass such conflicts up the chain of command within the National government administration officers (Assistant County Commissioner, Deputy County Commissioner) or to the police.

According to Chopra (2008), peace committees are a common feature in marginalised areas. Established at various administrative levels and comprising elders and other influential community leaders, they have the capacity to convene across villages, locations, and district or ethnic boundaries to negotiate solutions to conflicts (Chopra, 2008). He adds that, where conflicting parties are from different ethnic groups and adhere to other local systems, careful negotiations identify a common basis of agreement between the parties. In some of the most conflict-prone areas, peace committees meet and carefully negotiate general ground rules for conflict management. Some of these initiatives have



resulted in the drafting of 'Agreements' and 'Declarations'. Peace committees derive their strength from their deep roots in various local socio-cultural systems of marginalised communities (Chopra, 2008).

In Kenya, village elders play a crucial role in informal justice systems. They act as the foundation in dispute resolution for the majority of the population, particularly in marginalised areas. According to Mumbi (2015), village elders are respected and influential members of the community, chosen based on their reputation for impartiality, integrity, and knowledge of local customs. They act as mediators and arbiters in a wide range of disputes, including family matters (e.g., divorce, child custody), land and property disputes, debt and inheritance issues, minor crimes, cattle rustling and inter-ethnic conflicts.

According to Muthamia (2021), the traditional council of elders is a common institution in almost all communities in Kenya. Their role differs from one community to another, ranging from cultural, economic, and socio-political organisation to conflict management in the community. Traditional councils of elders play a central and vital role in informal justice systems by acting as impartial mediators and decision-makers focused on social cohesion, reconciliation, and the preservation of cultural values. Their main objective is reconciliation and restoring social harmony within the community, rather than merely administering abstract legal penalties. According to Mumbi (2015), the traditional council of elders have unlimited jurisdiction, and they occasionally sit to listen to matters that would have a great impact on the community.

Religious leaders from diverse religious backgrounds often facilitate dispute resolution, drawing on the religious laws and customs of their respective communities. By acting as mediators, providing moral guidance, and offering a trusted community-based avenue for dispute resolution, religious leaders play a significant role in informal justice provision (Mumbi, 2015). Their influence is rooted in deep community trust, moral legitimacy, and widespread religious identity, which enables them to address local conflicts, provide social support, and advocate for justice. They use their moral authority to mediate disagreements related to family, petty crimes, land issues, and other community concerns.

According to the Paralegal Support Network (2005), a paralegal is a community-based individual who is not a lawyer but who has basic legal knowledge and skills. As community members, they educate people about the law or offer basic legal services. According to Maru and Gauri (2018), they are familiar with local power dynamics and customs, on one hand, and they are aware of modern law and formal institutions, on the other. With this knowledge, they devise unique, flexible, and innovative solutions to justice problems for their communities (Maru & Gauri, 2018). Paralegals work on a diverse range of issues in a wide variety of informal and institutional settings. Many paralegals work out of their homes or are based in modest local offices maintained by civil society or community-based organisations. Some are trained to take a generalist approach, aiming to respond to any problem that affects a given community (Maru & Gauri, 2018). According to Paralegal Support Network (2005), they may receive petitions or walk-in customers to learn about grievances, or they may send staff on fact-finding missions to investigate major needs. Most paralegals focus on specific thematic areas or marginalised groups. They are therefore involved in dispute resolution/reconciliation, accompanying clients seeking justice, e.g. to an administrative office, monitoring and offering basic legal advice on seeking remedies or resolving disputes in specific cases (Maru & Gauri, 2018).

2.2.2 Effectiveness of the Existing Informal Justice Systems

This refers to the degree to which informal justice systems are successful in achieving the desired result or success. According to Chopra (2008), Chiefs and assistant chiefs complement formal legal systems by resolving a vast number of disputes, particularly in marginalised communities where formal systems are distant or distrusted. Informal justice systems, often led by chiefs or assistant chiefs, are usually accessible geographically and linguistically. Their procedures are typically conducted orally in public, and they are non-adversarial, resulting in faster and more cost-effective resolutions than formal courts. Mumbi (2015) asserts that since Chiefs and their assistants are respected figures within their communities, their decisions often carry consequential social weight. This embedded role helps to ensure compliance with decisions while also promoting social harmony and cohesion, which is a primary goal of informal systems. Depending on the disputes at hand, Chiefs offer bespoke solutions to the specific circumstances and cultural norms of the community. Their contribution to the overall justice architecture is therefore crucial in reducing court backlogs in formal systems.

According to Kioko (2017), peace committees attain their strength and legitimacy from being implanted in local socio-cultural systems and engaging traditional leaders and community members. Community ownership is crucial for the sustainability of decisions made and community trust. He adds that these committees provide accessible forums for dialogue, where individuals use their local language to express grievances and seek solutions quickly. This prevents minor disputes from escalating into widespread violence, a role the formal system often fails to provide efficiently. According to Chopra (2008), unlike formal courts that focus primarily on legal judgments, peace committees often use negotiation and mediation to reinstate relationships and promote reconciliation. This strengthens social cohesion and prevents future conflicts. He adds that they serve as a functional early warning and rapid response medium for nascent conflicts, such as land disputes or cattle rustling. The government recognised the role of these committees through the



National Steering Committee for Conflict Management and Peace Building (NSC), though a comprehensive legal framework is yet to be developed (Chopra, 2008).

Village elders live within the community and offer justice that is easily accessible and generally free, as compared with the often expensive and geographically distant formal court system. As stated by Mumbi (2015), their legitimacy is grounded in the extensive knowledge of local customs, culture, and residents, as well as their reputation for integrity and impartiality. The trust that community members have in village elders allows them to handle serious disputes, such as land, family, and natural resources, in a culturally appropriate manner. Village elders have a thorough understanding of community dynamics and the primary causes of disputes, such as boundary disputes over land and water. This facilitates nuanced, viable solutions for justice seekers.

Traditional councils of elders are found in almost every community and are deeply rooted in local customs. This gives their decisions significant weight and ensures greater community acceptance. According to Muigua (2017), these systems prioritise reconciliation and restoration of harmony within the community, rather than punishment, which can lead to more sustainable resolutions. Even though they may focus more on inter-community disputes, cultural preservation, and social-political organisation, the traditional council of elders also deals with the resolution of disputes, dispensing justice that is often more accessible than formal courts, which can be intimidating, complex, and expensive.

According to Puteri (2021), the perception of religious leaders as “guardians of morality” and reliable community figures affords them substantial influence in moulding social norms and individual conduct, as community members are generally predisposed to adhering to their counsel. He adds that they use languages that resonate with community values, they are affordable, accessible and culturally familiar than formal courts. Their methods frequently prioritise forgiveness, restitution, and the rebuilding of relationships. This approach often leads to more sustainable peace and social cohesion compared to the formal courts, which focus on retribution. Religious leaders often act as mediators and peace brokers. Puteri (2021) further posits that their influence extends from local communities to national and international levels, helping to minimise tension, promote understanding, and foster peaceful coexistence. They also advocate for the poor, women, and other vulnerable groups, acting as the voice of the voiceless. They are also known to use their platform to address issues of discrimination, inequality, and other social justice concerns (Puteri, 2021).

According to Maru and Gauri (2018), community paralegals live in the communities they serve, enabling them to respond fast to issues at the grassroots level. Their immediate presence and accessibility help to democratize justice for individuals who may not be able to afford formal legal services. They educate community members about their rights and how to access justice, therefore empowering citizens to resolve disputes. This improves community harmony and can reduce the rate of imprisonment by resolving disputes outside formal systems. They can also act as a link to the formal legal process if informal methods fail. Maru and Gauri (2018) contend that their work is often integrated into community structures, allowing them to be flexible and address justice needs within their particular local context, including issues such as environmental disputes, violence against women, and land rights, among others. By combining several strategies (advocacy, mediation, organising, monitoring, and education), community paralegals can pursue creative and constructive solutions to justice problems. Paralegals can tailor their approach in any given case to the wishes of the communities with whom they work.

2.2.3 Perception of Informal Justice Systems Compared to Formal Justice Systems

According to the International Development Law Organisation [IDLO] (2019), informal justice systems are frequently perceived as more accessible, affordable and culturally relevant, with a focus on community reconciliation, while formal systems are sometimes viewed as slow, distant, expensive, and unfamiliar, though they are imperative for upholding human rights and standardised legal equality. Both systems face different challenges; informal justice systems can perpetuate discrimination, especially against women, and formal justice systems often grapple with reach and public trust.

Ahmad and Von Wangenheim (2021) posit that informal justice systems are frequently more accessible because they operate within communities, use local languages, and rely on familiar, less intimidating structures than formal courts. They assert that these systems are frequently perceived as faster and cheaper, unlike formal systems, which are deemed to be expensive, time-consuming, and with complex procedures, making access to justice difficult for many, especially the poor and vulnerable. A substantial cost is involved in filing a case in a formal court (Ahmad & Von Wangenheim, 2021). Given the complexities involved and delays in the formal system, this cost can multiply manyfold, therefore discouraging justice seekers. Formal courts are also perceived as inaccessible due to distance, legal jargon, language barrier and specialised knowledge that may be required (Ahmad & Von Wangenheim, 2021).

According to Ahmad and Von Wangenheim (2021), informal systems often provide relatively effective dispute resolution compared to formal systems, particularly relating to social legitimacy, user perceptions of procedural transparency, efficiency, quality of decisions, and lower administrative complexity. Formal systems often have larger caseloads, greater delays, and may likely face abuse of judicial discretion, further strengthening demand for informal systems. Adu-Poku (2021) explains that citizens primarily pursue crime and dispute resolution through informal avenues



of justice, reserving the formal justice system for serious crimes and disputes when informal avenues fail. He further contends that individuals who have used formal justice systems often hold negative views due to encountered shortcomings. He notes that the sustained utilisation of informal avenues depends on their perceived effectiveness in resolving problems.

According to Buscaglia (2015), marginalised communities depend on informal justice systems because they do not perceive formal systems as legitimate or effective. Many reasons abound for this, including corruption or dysfunctional, complex procedures. While formal systems mainly derive their legitimacy from both national legislation and partly from international law, informal justice institutions are often met with much more acceptance from and within the local communities. Röder (2012) claims that decisions made within informal systems are often perceived as more legitimate because they reflect community values and norms. These decisions prioritise restoring social harmony rather than administering punishment. The goal of informal systems often focuses on compensation and reconciliation, which some community members prefer over the retributive justice of formal systems. The process in formal systems is often adversarial, which can further damage relationships within a community. There is a widespread perception of corruption in the formal legal system that makes citizens resort to informal justice forums (Mumbi, 2015).

In the quest for justice, trust begets legitimacy. According to Ahmad and Von Wangenheim (2021), in informal systems, decisions are often made by respected community elders or figures, promoting greater trust and reliance on social pressure for enforcement, which can be more effective in certain contexts than formal enforcement. According to Mumbi (2015), the judiciary in Kenya suffers from perceptions of a lack of public trust, political interference, significant case backlogs and delays, which frustrate parties seeking a quick resolution. This discourages citizens, who then opt for informal systems.

Denney and Domingo (2023) aver that some practices in informal systems may be inconsistent with international human rights standards, particularly concerning the rights of women, children and minority groups. They contend that informal justice institutions are often male-dominated, and their decisions tend to be gender-biased. There is, therefore, a risk of bias and discrimination in informal systems, and this may perpetuate discriminatory outcomes and patriarchal biases. Lack of written rules or procedural safeguards can lead to the abuse of power, impartial hearings and other human rights standards violations. On the other hand, formal systems are backed by written laws, procedures and consequences in case of disobedience that guide each and every step in the justice process (Röder, 2012). One is guaranteed protection of rights despite the his/her gender or any other affiliation. They offer greater predictability and legal certainty in their outcomes compared to the flexible rules of informal systems.

According to IDLO (2019), formal systems have the coercive power of the state to enforce their decisions, ensuring compliance in situations where social pressure may be insufficient. They also provide an opportunity to appeal decisions made in a higher court if one is dissatisfied. This is a major drawback in informal systems, where there are no guaranteed ways to ensure compliance with decisions and opportunities to appeal in case of dissatisfaction with a decision. In informal systems, compliance with decisions usually relies on social pressure linked to the authority of the method used, and the shame associated with rejecting a fair decision and jeopardising group harmony, or spiritual beliefs (IDLO, 2019).

III. METHODOLOGY

3.1 Research Design

This research adopted a mixed methods approach combining qualitative case study and quantitative surveys to study the impact of informal justice systems on access to justice for marginalised communities in Patte Island, Lamu County. The method was best suited since it provided a comprehensive understanding of complex social dynamics while also allowing for measurable data on effectiveness and accessibility.

3.2. Target Population

The target population was the residents of Patte Island aged 18 years and above.

3.3 Sampling and Sample Size

The study was carried out amongst a cross-section of Patte Island population, including chiefs, religious leaders, community elders, paralegals, police officers, prosecutors, and residents (both users and non-users of informal justice systems). Patte Island is generally divided into nine areas (villages), namely Mtangawanda, Siyu, Patte, Faza, Shanga Rubu, Shanga Ishakani, Tchundwa, Mbwejumwali, and Kizingitini. 5 police officers, 8 chiefs and 2 prosecutors were purposively selected. All police officers in charge of Faza, Siyu, Kizingitini, Tchundwa and Mbwejumwali police establishments were selected. All chiefs from Mtangawanda, Siyu, Patte, Shanga (Rubu and Ishakani), Faza, Tchundwa, Mbwejumwali, and Kizingitini were selected. Likewise, all prosecutors based in Lamu, but who handle cases from Patte Island, were selected. 9 religious leaders were randomly selected from the nine villages of Patte Island. 9 community elders were randomly selected from the existing 'nyumba kumi' establishments in the nine villages of Patte Island. 5

community paralegals and 52 residents from all the villages of Patte Island were selected randomly. The total sample size was 90 respondents. Gender balance was considered while selecting respondents randomly.

3.4 Data Collection Methods

The study used interviews to collect data from police officers, community paralegals, and prosecutors. Interviews yield rich, qualitative data and enable follow-up while capturing respondents' nuanced personal emotions, attitudes, and experiences through one-on-one interaction and flexible questioning. Data from chiefs, community elders, religious leaders and 15 residents selected for the study was collected through focus group discussions. It enabled the researcher to gather collective perspectives and stimulate dialogue about perceptions, community norms, and challenges with both informal and formal systems. An interview schedule was the instrument used to collect data, which contained both open-ended and closed-ended questions. Structured surveys were also used to collect data from the other half of the residents selected for the study. The instrument used for the survey was a standardised questionnaire. It contained pre-set, closed-ended questions that were the same for every respondent and asked in the same order. It was used on the larger sample of residents to gather quantitative data on cost, time taken, usage rates, outcomes of disputes, and satisfaction levels. With informed consent, the researcher also used observation to monitor actual informal justice system proceedings, aiming to understand power dynamics, procedural fairness, and decision-making processes in practice.

3.5 Data Analysis

The study produced both quantitative and qualitative data. Quantitative data was organised, cleaned, coded and analysed using the Statistical Package for Social Sciences (SPSS). Qualitative data was analysed by interpreting the responses and aligning them to form identifiable themes and actual narratives. The data underwent rigorous examination to ensure the analysis produced highly cogent, reliable, and credible conclusions. Data was interpreted through percentages and tables.

3.6 Ethical Considerations

All respondents were guaranteed secrecy and anonymity before and after the study. They all gave their informed consent and participated willfully.

IV. FINDINGS & DISCUSSION

4.1 Background Information

Patte Island is the largest island of the Lamu Archipelago, inhabited by the Bajuni community and a few other tribes, mainly from the coast region of Kenya. It is a significant historical and cultural site with a rich Swahili past and is predominantly Muslim-dominated. Educational levels on Patte Island were found to be relatively low. Most respondents (61%) had finished secondary school. However, university graduates accounted for only 7%, and those in technical and vocational education and training (TVET) accounted for just 4%. A total of 18% had primary education or less, including those who had dropped out or never attended school. In terms of occupation, the majority of respondents (34%) worked as fishermen. Small-scale farmers made up 15% of the group, while 4% were students enrolled in technical and vocational education and training (TVET) institutions. Other respondents were (15%) civil servants (police officers, prosecutors and chiefs), (17%) community leaders (religious leaders and community elders) and (5%) community paralegals. The study did not ask about the personal income of the sampled residents, which is a sensitive issue, but it can be inferred from their education and employment that they had low and inconsistent income due to the type of employment they had. These findings are critical in establishing the integrity of the overall study.

Table 1

Background Information (Level of Education)

Respondents	Level of education			
	Degree	Technical and vocational education and training (TVET) institutions	Secondary school education	Primary school education/Drop out/Never attended school
Patte Island residents	2	3	38	9
Police officers	2	0	3	0
Area chiefs	0	0	8	0
Religious leaders	0	1	6	2
Community elders	0	0	2	7
Community paralegals	1	0	4	0
Prosecutors	2	0	0	0
Total Percentage	7%	4%	61%	18%



Table 1 above shows the level of education of the various respondents involved in the study. The highest number of respondents (61%) had a secondary school level of education, 7% had a university degree, while only 4% had a university degree.

Table 2

Background information (Occupation)

Respondents	Occupation					
	Civil servants	Fishermen	Community leaders	Small-scale farmers	Students	Community paralegals
Patte Island residents	0	34	0	15	3	0
Police officers	5	0	0	0	0	0
Area chiefs	8	0	0	0	0	0
Religious leaders	0	0	8	0	1	0
Community elders	0	0	9	0	0	0
Community paralegals	0	0	0	0	0	5
Prosecutors	2	0	0	0	0	0
Total Percentage	15%	34%	17%	15%	4%	5%

Table 2 above presents the respondents' occupations at the time of this study. Most of the respondents (34%) were working as fishermen, 17% were community leaders (religious leaders and community elders), while the least were students in local national and county technical and vocational education and training (TVET) institutions.

4.2 Access to Justice: Cost, Time Taken, Usage Rates, Satisfaction levels, Accessibility and Effectiveness of the Existing Informal Justice Systems in Patte Island

The cost of informal justice systems was found to be lower than that of formal courts. It often involved minimal or no direct costs. Costs incurred, if any, included transportation (minimal since they operate locally), lost work time (time spent in meetings), and unofficial tokens, which pale in comparison to formal court expenses. Respondents indicated an average of Kenyan shillings 150. The average time taken in an informal justice system was generally short. Cases were resolved in a day, days, or weeks, depending on their seriousness. The efficiency of the process stemmed from its local accessibility, simplified procedures, and emphasis on community restoration. According to respondents, as in many developing and post-conflict states, the usage rates of informal justice systems in Patte Island were found to be 80 to 90 per cent of all disputes. 70% of residents surveyed expressed satisfaction with the outcomes provided by existing informal justice systems. Satisfaction with the use of informal systems averaged 74%, since the outcomes featured restorative solutions such as restitution, compensation, and reconciliation, which prioritise healing and harmony over punishment. 96% of the sampled respondents agreed that informal justice systems were easily accessible. Regarding effectiveness, 82% of respondents asserted that informal systems were more effective than formal systems. After a thorough consideration of the aforementioned factors on affordability, rapid justice, high usage rates, high satisfaction levels, easy accessibility, relatability and effectiveness, it can be inferred that informal justice systems have provided a platform for people in Patte Island to access justice easily through dispute resolution and upholding rights, especially due to the absence of formal systems.

This study highlights the opportunities presented by informal justice systems due to their unique features and widespread diversity. According to IDLO (2019), a key dilemma is how to harness the potential of informal systems to increase access to justice without causing harm or legitimising rights-abrogating practices. They contend that a comprehensive understanding of the value of informal justice systems must take into account both their merits and their limitations.

4.3 The Existing Informal Justice Systems in Patte Island

The study found that existing informal justice systems in Patte Island used a blend of Islamic law (Sharia) principles with local Bajuni customs. They also relied on alternative dispute resolution mechanisms, including conciliation, consensus building, compensation, restitution, arbitration, mediation, mini-trials, early neutral evaluation, and facilitated negotiation. Respondents averred that Sharia law is not only a legal system, but a complete way of life for them. It not only guides personal conduct and dispute handling, but the community also appreciates it because they understand it. Bajuni or Swahili customs are traditional rules that were developed from the bottom up, and even though they are constantly evolving, they guide how conflicts are resolved. They are specific to the Bajuni community and are widely accepted and mutually recognised. They are rooted in wisdom, born of concrete daily experience or more intellectually based on great spiritual or philosophical traditions.

4.3.1 Religious Leaders



The study found that religious leaders (Imams and Sheikhs) were almost universally regarded and highly respected within Patte Island. They were important in solving almost all types of conflicts, from land issues to inheritance, from marital disagreements to child support and many other disputes. Religious leaders were primarily using Sharia law to address conflicts and administer justice to the aggrieved parties. The respondents considered Sharia law relevant, significant and practical in their daily lives, and this could only be achieved through addressing disputes through religious leaders. Religious leaders were seen to be relevant when all parties to a dispute were Muslims.

One community elder said,

“Our Islamic religious texts, the holy book Quran, and hadith (Prophetic traditions), lay down principles of justice, love, compassion and understanding. These guidelines guide our elders; those seeking justice, and also ensure fairness and justice for the accused party.” Respondent Z, 5th October, 2025.

4.3.2. Community Elders

Respondents indicated that community elders were respected local and community leaders who play a crucial role in mediating disputes in Patte Island. Their authority stemmed from their experience, wisdom, and moral standing within the community. They understood the local architecture of conflicts and were easily accessible and preferred by residents to formal courts because of the use of the local language, lower costs, and faster dispute resolution. Respondents also indicated that the respect elders commanded gave parties to the dispute confidence in the fair adjudication of their disputes. These elders may belong to ‘nyumba kumi’, be village headmen, community policing committee members, or even selected respected elders in the community.

A police officer commented,

“Community elders leverage their wisdom, community respect, and knowledge of local customs to achieve results such as compensation and agreements, often working to restore broken social ties within the community.” Respondent Y, 5th October, 2025.

4.3.3 Chiefs and Assistant Chiefs

Respondents expressed deep faith in the administration of justice as delivered by their area chiefs and their assistants in Patte Island. Having come from the same community, chiefs played a crucial role in dispute resolution by acting as mediators and arbitrators for the local community. The study found that chiefs primarily handled civil disputes like land and domestic issues while referring criminal cases to the police. Chiefs were also critical in maintaining order, facilitating community-based solutions, and ensuring that justice was accessible to the marginalised and poor population who may not be able to afford formal court proceedings. Chiefs mediated conflicts through community engagement, using local customs and values to maintain social harmony. They often worked with village elders to resolve civil conflicts.

A resident lamented that

“Chiefs and their assistants act as mediators; they help parties in a dispute find a mutually agreeable solution. Our chief has been known for fostering win-win solutions and involving affected families in the process to promote community harmony.” Respondent X, 5th October 2025.

4.3.4 Bajuni Traditional Council of Elders

The study found that there exist a Bajuni Council of Elders, which is a traditional body that aims to unite the Bajuni community. Its role is to bridge the geographical divide between the various areas where the tribe is found, mediate disputes, maintain order, provide counsel, and help to enforce community rules. Established in the year 2020, the Council of Elders has been instrumental in solving disputes within Patte Island, and they sit occasionally to listen to matters that would have a great impact on the community as a whole and have unlimited jurisdiction. They command respect and honour even though they are not widely used by locals on Patte Island.

One resident commented,

“Our traditional council of elders leverage cultural knowledge, community trust, and wisdom to resolve disputes such as resource issues, land conflicts, and cultural conflicts. They uphold our ancestral African justice mechanism that relies on reputation, not formal qualifications, but one that focuses on restorative outcomes that uphold community cohesion.” Respondent W, 5th October 2025.

4.3.5 Community Paralegals

Respondents indicated that community paralegals provided a critical avenue for dispute resolution in Patte Island. They were bridging the gap in accessing formal courts, especially in marginalised areas like Patte Island. Most of the paralegals had been trained by local non-governmental organisations and certified as local mediators to resolve community conflicts. Some paralegals felt that their work is rooted in principles of altruism, volunteerism, and community service. The study found that paralegals were particularly effective in Patte Island because they typically

reside within the community they serve, building trust and rapport that lawyers often struggle to establish. They focused on assisting minorities, vulnerable, and disadvantaged groups in Patte Island who faced significant barriers to justice due to distance, poverty, and lack of information. They were also creating awareness of rights through community outreach programs and campaigns to increase legal literacy, thereby preventing conflicts and empowering residents to assert their rights confidently. They used negotiation and mediation to resolve minor disputes locally, such as family, land, and inheritance conflicts. Respondents indicated that paralegals acted as intermediaries between the community and formal justice institutions, such as police and courts, by translating the formal, technical language of legal documents, making appropriate referrals, and preparing paperwork. The paralegals were also documenting human rights cases and violations regarding police excesses and gender-based violence, which provides evidence for potential formal action and helps to hold authorities accountable.

One resident said,

“Community paralegals have a strong connection to the community and local knowledge that allows them to customise remedies and ensure justice is administered based on the specifics of the case, rather than adhering strictly to formal procedures.” Respondent V, 5th October 2025.

This study highlighted informal justice systems that the researcher considers universal in many, if not all, marginalised communities. Most of them are used independently or in conjunction with those that are specific to a community. On the other hand, Mumbi (2015), in her study on the effectiveness of informal access to justice in the Kajiado North and West constituencies, specifically examined the informal justice systems that are unique to the Maasai community. This included the roles of village elders, chiefs, Barazas, and the Maasai Council of Elders.

4.4 The Effectiveness of the Existing Informal Justice Systems in Patte Island

The study found that the existing informal justice systems on Patte Island are easily accessible to residents. Respondents estimated that about 80% to 90% of disputes in Patte Island were resolved through informal justice systems. Geographically, Patte Island is only accessible through the Indian Ocean, with Lamu Island, which is two hours away, being the biggest and nearest town with all administrative and government offices. There is no functioning formal court on Patte Island. The formal court based in Lamu Island only visits and sits in Patte Island once every two months, where formal matters are heard. Those people who need their matters heard and concluded fast must travel by boat to Lamu Island, which is far, costly, and time-consuming. Patte Island has no single tarmacked road. The road and mobile phone network are poor, making transport and communication costly. Informal justice procedures were taking place within the community, eliminating the need for time-consuming and expensive travel to the Lamu Island formal court.

Most of the respondents (83%) indicated that informal justice systems were affordable. They typically involved little to no monetary fees for the whole process. Respondents were also calculating the opportunity cost whenever they decided to consult a formal court, noting that proceedings in informal systems were typically less expensive since they were concluded much faster. Considering that most of the residents of Patte Island were mainly fishermen and had little income, affordability for them was a major consideration in order to spare their income for the next meal.

There was a general feeling of acceptance of the existing informal systems due to their relevance to the culture of the people in Patte Island. Respondents argued that these systems used Sharia law and Bajuni cultural norms, making them more familiar and trusted by the community. They also added that the systems were administered by trusted community members such as religious leaders and community elders, who were highly respected and who had a thorough understanding of the dynamics of disputes in the community. They also considered the decisions made in informal systems socially relevant because they originated from local knowledge, shared community standards, and the immediate context, making them familiar and appropriate for the local population.

The study found that the existing informal systems were effective because of their restorative, peace-building and cohesion role. Like elsewhere, informal systems in Patte Island were focused on prioritising restorative justice, which helped mend relationships and strengthen social cohesion after a dispute was resolved. This focus on reconciliation and restoring social harmony resulted in pragmatic solutions such as compensation, which were more flexible and manageable for the parties involved than punitive measures like incarceration, which can have a severe negative economic impact on families. Respondents felt that in a close-knit community like Patte Island that is faced with continuous challenges in economic opportunities, infrastructure, illiteracy and many others, it was important to cultivate community cohesion by leveraging shared values of forgiveness and reconciliation to transform worldviews and ensure people lived peacefully to focus more on how to earn their daily bread.

The study established that there was a general perception of legitimacy and trust with the existing informal justice systems in Patte Island. Community elders expressed that the conduct of informal systems relied heavily on the cultural, religious, procedural and substantive norms and practices of the Bajuni community. The proceedings were conducted in the local Bajuni language, and residents felt familiar with the elders, the procedures, and would not wish to be condemned or isolated from their culture; hence, they would cooperate fully. They therefore enjoyed a high degree of trust and legitimacy from the residents. It was established that most residents had intermarried from one village to



another, had relatives elsewhere on the Island or had ancestral relations that made them familiar with each other. This made them submit their disputes to the existing informal systems with confidence that a just solution would arise and that no one would be intimidated by the proceedings.

Respondents were satisfied with the speed and flexibility of informal systems in solving conflicts. They posited that this led to quick resolutions, as seen in examples where cases were resolved in a matter of a day, days or weeks. There were no complicated procedures or rules, and both the aggrieved and the accused person were treated fairly. They said that when disputes are resolved quickly, those involved can easily return to their work, avoid straining relationships further, and ensure community harmony is maintained. In cases where chiefs and paralegals are involved in dispute resolution, residents indicated that they benefited from the dual application of informal and formal knowledge, resulting in a balanced, well-informed decision and, in serious cases, an opportunity for referral to the formal system.

According to Chopra (2008), the most prevalent problem undermining the work of formal systems is that official laws and legal processes do not reflect the ideas and value systems of local populations, which define crime and prescribe how conflicts should be resolved. This study went further to establish the unique desires of marginalised communities, such as cultural relevance, legitimacy and restorative justice, as ingredients that ought to be present while accessing justice.

4.5 The Perception of the Existing Informal Justice Systems Compared to Formal Justice Systems in Patte Island

Respondents indicated that the informal justice systems they were using were easily accessible, unlike the formal courts. They were located within the community, and they used their local Bajuni language, making them easier to reach than the formal court, located on Lamu Island, which is two hours' distance from Patte Island, while using a boat. The use of the Bajuni language made them feel more familiar with informal systems than formal courts, where only English and Kiswahili were the official languages. Because of the unavailability of courts in Patte Island, which is a marginalised area, informal systems were the only viable option in dispensing justice.

Most respondents (85%) felt that formal systems were expensive and slower than informal systems. They asserted that from when a report is made to the police station up to when a matter is concluded in court, there were many expenditures that they could not afford. Even for civil cases, there was a cost of filing cases, transport costs, advocates and court fees that were out of their reach. Unlike in informal systems, where there was little or no expenditure by the parties in a conflict. In terms of speed, respondents argued that informal systems were faster in resolving disputes, unlike the court process, which they deemed lengthy and tedious.

The study found that respondents perceived informal systems to be culturally relevant. Since most of their informal systems were grounded in Sharia law and local Bajuni customs, it aligned with their culture and belief system. Accordingly, procedures and substantive norms of their informal systems were more in line with their local culture and the social relations of people compared to those of formal justice systems. Respondents felt a cultural disconnect with the formal system. They felt it was alien and imposed external laws that lacked local legitimacy. Formal court procedures were complicated and only known to educated people or lawyers, therefore discouraging them from using the courts. The outcomes in informal systems were culturally more resonant than fines or incarceration given by formal courts.

Respondents perceived their informal systems to be restorative in nature since they emphasised restoring peace and social harmony through negotiation and consensus, rather than adversarial punishment that was administered in formal courts. They posited that, whether through negotiations, conciliation, or arbitration, the goal was always to ensure an outcome that would bring cohesion and harmony between the parties to a conflict. They were mindful that the community must remain cohesive and coexist together. They perceived formal systems to be retributive, harsh and adversarial, where one party wins, and another party loses, which is not good for the community since they must live together.

The study found that respondents had deep trust in informal justice systems. They posited that elders were well-versed in the history and context of community conflicts, how they evolved, and their potential consequences, and would devise a flexible way to address them. They felt that the legitimacy of their informal justice systems depended on their trust and confidence as end users. Formal systems were perceived as corrupt, influenced by state interests, with long, complicated procedures, and requiring special qualifications to understand and use them. This demoralised their interest in using them.

Police officers and prosecutors expressed concerns about human rights aspects in informal systems. On the issue of gender inequality, they argued that informal systems mirror patriarchal societal norms and disadvantage women and children in matters of inheritance and property rights. The minority tribes that do not belong to the Bajuni community may also feel disadvantaged. They further argued that informal systems have the potential of entrenching existing societal discrimination, making them inherently problematic if not carefully assessed. Prosecutors also pointed out the issues of absence of due process and fair trial, noting a lack of impartial hearings, protection from arbitrary decisions and lack of legal counsel, which are well embedded in formal systems. Police officers sighted the potential of corruption, impunity, abuse of power and lack of oversight in informal systems. Those running informal systems can easily overstep



their boundaries, leading to unfair outcomes or extortion, especially for the poor and vulnerable. Weak monitoring mechanisms may allow abuses to go unpunished, unlike in formal systems where checks and balances exist and there is the opportunity to appeal if one is dissatisfied with a decision.

In terms of constitutional recognition and the interplay between informal and formal systems, prosecutors cited Article 159(2)(c) of the Kenyan Constitution, which requires tribunals and courts to promote alternative forms of dispute resolution, including traditional justice mechanisms, provided they do not contravene the Bill of Rights, be repugnant to justice or morality or contravene any written law. This provided the legal basis for the formal recognition of informal systems. Chapter ten of the Constitution of Kenya sets out the formal justice system in Kenya. The Judiciary of Kenya developed and launched the Alternative Justice System Baseline Policy as a bridge to provide a legal framework. This policy institutionalised and structured the use of various alternative justice models, and aligned them with constitutional principles and human rights standards.

The study found that there is an established referral mechanism system, namely the court-annexed alternative justice system. This creates a formal link where community leaders in informal systems can refer matters to the courts and the court can refer matters to accredited informal systems, in matters such as family or civil cases, based on a mutual referral system. The study found that there were instances where parties resolved a dispute in an informal justice forum and went to court to adopt that decision as their own. In other instances, the matter can be referred to informal systems when a dispute is pending in court, either on application by the parties or the court's own motion. Since it is a constitutional duty of courts to promote informal justice systems, the interaction of formal and informal systems is not only unavoidable, but courts are duty-bound to ensure that the interaction is a reality. The Alternative Justice System Baseline Policy also provides direction on how to ensure that decisions made by informal justice systems, once validated, can be enforced by the formal courts, adding legal weight and accountability to community-level resolutions.

The perception of most police officers and chiefs was that excessive reliance on informal justice systems by the community would create parallel legal orders that would operate outside the formal state framework, and it could undermine the principle of a singular, uniform legal system applicable equally to all citizens. There was also a perception that informal justice systems may challenge the legal supremacy of the formal justice system because it is locally perceived as ineffective, inaccessible, and irrelevant, compared to informal systems. This perception was seen to diminish the state's monopoly on the legitimate use of judgment and force and its claim to legal supremacy.

Respondents perceived the heavy reliance on informal systems by the community as a gap in service delivery by the government. The state was seen to have abdicated its core responsibility to provide justice and security to its citizens, as Patte Island was a marginalised area with no formal court. Informal justice systems filled this gap. There was a feeling that by allowing informal systems to handle most disputes, the state was ceding direct engagement with its population on critical issues of conflict, property, and rights. This was seen to reduce the territorial reach of state authority and weaken its overall political legitimacy.

Mumbi (2015) agrees that despite heavy investment in the formal system, lack of trust has been the major challenge that makes people opt for informal systems, especially in rural settings. According to IDLO (2019), well-functioning justice institutions play a key role in preventing conflicts from igniting and ensuring they do not relapse or escalate. They add that developing institutions at all levels to deliver justice services and resolve disputes is a priority to prevent instability and generate a level of trust and confidence in the state. This study goes beyond trust to examine the impact of informal systems in areas without established formal systems, the interplay between informal and formal systems and possible ways of reinforcing their collaboration to ease access to justice and strengthen mechanisms for human rights safeguards, while establishing appeal avenues for justice seekers.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusions

With over 80% of disputes being resolved through informal justice systems, their practicality and use cannot be ignored. Most residents of Patte Island have experienced and interacted with justice through these mechanisms. Informal justice systems have proved more accessible than formal systems and provide quick, relatively inexpensive and culturally relevant remedies. Particularly where formal justice systems are weak or lack capacity, they enjoy widespread community legitimacy and support. While formal systems aim for universal legal rights, informal systems often deliver immediate justice for everyday disputes, though sometimes at the cost of some rights. Yet it is also important to recognise that formal justice systems are not exempt from flaws – indeed, these flaws are the reasons that citizens opt for informal justice systems.

Given this central role, it is important to build an understanding of informal justice systems, their impact and interplay with formal justice systems to ensure synergy in the access and delivery of justice. The judiciary has provided official forms of collaboration with formal systems through the Alternative Justice System Baseline Policy. To actualise legal pluralism, and for the state authority to remain robust, a balanced approach is often needed, where informal justice



systems are ideally recognised, monitored, and linked to the formal justice system to give them recognition. Careful navigation of both informal and formal justice systems is essential to ensure that they advance substantive, people-centred justice aligned with human rights principles, rather than entrenching existing structures of inequality, discrimination, and marginalisation.

5.2 Recommendations

To effectively harness the positive impact of informal justice systems, there is a need for training and capacity building for the actors, such as chiefs, community elders, religious leaders, and peace committees, on professional mediation, human rights norms and practices, and national laws, while respecting the value and needs of the local informal justice mechanisms. The perception of the patriarchal systems entrenched in informal justice systems must be changed to promote inclusivity and encourage the inclusion of different community representatives, including youth and women, in decision-making structures to help address the inherent power imbalances. There is a need to empower marginalised communities on their rights and obligations through awareness campaigns that target the poor, minorities, women, and children, so that they can effectively participate in and benefit from informal justice processes. Community members should be sensitised on the availability of both formal and informal justice systems, and when it is appropriate to use each system.

Non-governmental community benefit organisations should help the existing informal justice actors in documenting their procedures and outcomes to facilitate better monitoring and evaluation of their impact, and help identify and address human rights concerns. The government, through the judiciary, should, as a matter of policy, strengthen the collaborative approach where informal and formal systems complement each other. The emphasis should be clear and known pathways for review or appeal of informal justice systems decisions by formal courts, and recognition and enforcement of certain informal justice systems decisions by formal courts, as long as they adhere to human rights standards established in law. An acknowledgement by the government that informal justice systems are the most primary, affordable, accessible and widely used avenue for justice seekers in marginalised communities will go a long way to engage them as a comprehensive nationwide strategy to ensure access to justice while encouraging adherence to set human rights safeguards. The government should also consider offering free legal representation services for vulnerable, marginalised community members who may need to challenge discriminatory informal justice system outcomes or navigate the formal system.

Declaration of Interest

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Total Quality Management (TQM) principles and their application in Zambian higher education institutions: A Systematic literature review

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ABSTRACT

Total Quality Management (TQM) is widely regarded as a valuable approach for enhancing quality, accountability, and competitiveness in higher education. This study examines how TQM principles are adopted and applied across universities in different regions to improve student satisfaction, with a particular focus on Zambia. This review is grounded in Total Quality Management (TQM) Theory. A Systematic Literature Review (SLR) of 41 empirical and policy-orientated studies was conducted to identify key factors influencing TQM implementation, its effects on quality management systems, and the challenges faced by higher education institutions. The review suggests that leadership commitment, stakeholder involvement, staff capacity, and performance measurement systems are central to the effective implementation of TQM, although their influence appears highly context-dependent. While TQM is generally associated with improvements in internal quality assurance, administrative processes, and student satisfaction, evidence linking it directly to learning outcomes and graduate employability remains limited. In Zambia, TQM-aligned practices have supported stronger governance structures and continuous improvement efforts, but limited resources, inadequate training, and resistance to change often constrain progress. The review also highlights a shortage of peer-reviewed empirical studies examining comprehensive TQM implementation in Zambian higher education institutions. To work around these constraints and, hopefully, make TQM less of a paper exercise, there may be value in closer collaboration between institutional leadership and the Higher Education Authority (HEA). Targeted TQM training, especially for managers who are expected to implement it, appears necessary rather than optional. At the same time, investment in Education Management Information Systems (EMIS) is likely to matter more than is often acknowledged, since decisions still tend to rely on incomplete or outdated data. Quality Assurance (QA) principles could also be treated less as a compliance requirement and more as part of everyday planning and budgeting. Finally, involving students and industry stakeholders in QA processes beyond occasional surveys or formal consultations may help ensure that quality efforts reflect real institutional and labour-market expectations.

Keywords: Higher Education, Quality, Systematic Literature Review, Total Quality Management, Zambia

I. INTRODUCTION

Higher education plays a pivotal role in national development, serving as a cornerstone for economic growth, innovation, and social progress. In Zambia, as in many developing countries, the higher education sector faces numerous challenges, including resource constraints, quality assurance issues, and the need to enhance global competitiveness (Mijere et al., 2025). To address these challenges, higher education institutions (HEIs) in Zambia are increasingly adopting modern management approaches. Among these, Total Quality Management (TQM) has emerged as a promising strategy for enhancing institutional performance and student satisfaction. TQM is a comprehensive management approach centered on quality improvement through the participation of all organizational members and has its roots in the manufacturing industry. However, its principles have been successfully adapted to various sectors, including education. In the context of higher education, TQM aims to create a culture of continuous improvement that permeates all aspects of institutional operations, from academic programs and teaching methodologies to administrative processes and support services (Sallis, 2022).

The Zambian higher education landscape comprises a diverse mix of institutions, including public and private universities, technical and vocational education and training (TVET) institutions, and colleges. According to the Higher Education Authority's gazetted list of registered and recognised institutions, Zambia had 160 higher education institutions, comprising 19 public and 141 private HEIs as of March 2024 (Higher Education Authority, 2024). This expansion of the higher education sector has brought with it increased competition and a growing emphasis on quality and student satisfaction.



The Higher Education Authority (HEA) of Zambia, established under the Higher Education Act No. 4 of 2013, plays a crucial role in overseeing and regulating the country's higher education sector. The HEA is mandated to promote quality assurance, accredit higher education institutions and their programs, and ensure that Zambian HEIs meet national and international standards. In recent years, the HEA has been actively promoting quality enhancement initiatives, including encouraging institutions to adopt modern management approaches like TQM (Higher Education Authority, 2023).

Several universities in Zambia have begun to explore and implement TQM principles in their operations. The University of Zambia (UNZA), the country's oldest and largest public university, has established a Quality Assurance Directorate that oversees the implementation of quality management systems across the institution. UNZA has integrated TQM principles into its strategic plan, emphasizing continuous improvement, stakeholder engagement, and evidence-based decision-making (University of Zambia, 2024). Other notable institutions in Zambia's higher education sector, such as Mulungushi University, Zambia Open University, and the Zambian Catholic University, have also been making efforts to enhance their quality management systems. These institutions are increasingly recognizing the importance of TQM in improving their academic and administrative processes, enhancing student experiences, and strengthening their competitive position in the regional and global higher education market (Mwiya et al., 2017).

The measurement of student satisfaction has become an integral part of quality assurance efforts in Zambian HEIs. Many institutions have adopted various tools and methodologies to assess student satisfaction, including surveys, feedback mechanisms, and student engagement initiatives. For instance, UNZA conducts regular student satisfaction surveys that cover various aspects of the student experience, including teaching quality, learning resources, support services, and campus facilities. The results of these surveys are used to inform institutional decision-making and drive continuous improvement efforts (Penda & Mathilda, 2025).

Despite these positive developments, the implementation of TQM in Zambian HEIs faces several challenges. Resource constraints, including limited funding and infrastructure, often hinder the full realization of TQM initiatives. Additionally, there is a need for more comprehensive training and capacity building in TQM principles and practices among staff and faculty members. Cultural factors and resistance to change also pose significant barriers to the effective implementation of TQM in some institutions (Mijere, et al., 2025). Furthermore, the adaptation of TQM to the specific context of Zambian higher education requires careful consideration. The unique needs of the Zambian education system, including the goal of producing graduates who can contribute to national development and compete in the global job market, must be considered when implementing TQM principles. There is also a need for more research on the effectiveness of TQM in improving student satisfaction and overall institutional performance in the Zambian context.

The concept of student satisfaction in higher education has gained significant attention globally, and Zambia is no exception. Student satisfaction is increasingly recognized as a crucial indicator of institutional quality and effectiveness. It encompasses various aspects of the student experience, including academic quality, support services, campus facilities, and overall institutional culture. In Zambian HEIs, efforts to improve student satisfaction are closely linked to quality management initiatives. Institutions are increasingly focusing on understanding and meeting students' needs and expectations (Musonda-Mubanga & Chakanika, 2018).

However, measuring and improving student satisfaction in the Zambian context presents unique challenges. These include diverse student populations with varying expectations, resource limitations that may affect service delivery, and the need to balance quality improvement with increasing access to higher education (Bwalya, 2023a). Some Zambian HEIs have implemented student satisfaction surveys, focus groups, and feedback mechanisms, but there is a need for more standardized and comprehensive approaches to measuring and improving student satisfaction across the sector (Musonda-Mubanga & Chakanika, 2018).

The relationship between TQM implementation and student satisfaction in Zambian HEIs is an area that requires further exploration. While some studies have suggested a positive correlation between TQM practices and improved student satisfaction in other contexts (Nasim et al., 2019), the specific dynamics of this relationship in Zambia need more comprehensive research. Understanding this relationship could provide policymakers and institutional leaders with valuable insights to enhance the quality of higher education in the country.

As Zambian HEIs continue to navigate the challenges of the 21st century, including increased competition, changing student demographics, and the need for global relevance, the adoption of effective quality management systems becomes increasingly critical. TQM, with its focus on continuous improvement and stakeholder satisfaction, offers a promising approach to addressing these challenges and enhancing the overall quality of higher education in Zambia (Daka et al., 2025). This approach could potentially revolutionize the way Zambian institutions operate, leading to improved educational outcomes and increased global competitiveness.



1.1 Research Questions

- i. How have TQM principles been applied in higher education institutions?
- ii. What are the key factors influencing the successful implementation of TQM in these institutions?
- iii. What impact has the adoption of TQM had on quality management systems and educational outcomes in higher education?
- iv. What challenges and barriers are encountered by higher education institutions when implementing TQM principles?

II. LITERATURE REVIEW

2.1 Theoretical Review

This review is grounded in one theoretical framework, and that is the Total Quality Management (TQM) Theory.

2.1.1 Total Quality Management (TQM) Theory

The goal of Total Quality Management (TQM), a holistic management concept, is long-term organizational success through customer focus, continuous improvement, and employee participation. Students in higher education are regarded as the main clients, and their satisfaction serves as a key indicator of the institutional quality. Research has demonstrated that the use of Total Quality Management (TQM) concepts, including leadership, employee engagement, process management, and customer focus, improves administrative and academic performance (Ibidunni et al., 2023).

Deming's 14 Points highlight the significance of data-driven decision-making, cooperation, leadership commitment, and methodical problem-solving in achieving ongoing quality improvement. Like this, Juran's Quality Trilogy, which consists of planning, control, and improvement, offers an organized framework for establishing quality targets, keeping an eye on procedures, and putting systematic improvements into place that match stakeholder expectations with institutional goals (Khasanah et al., 2023).

Deming and Juran's theoretical frameworks work together to support the use of Total Quality Management (TQM) in higher education by directing organizations to embrace process optimization, quality-oriented leadership, and participative decision-making. To assess how TQM application affects academic performance, student satisfaction, and administrative efficacy in higher education institutions, the current study is informed by this framework.

III. METHODOLOGY

3.1 Research Design

This study adopted a systematic literature review (SLR) design to synthesize existing evidence on the application of Total Quality Management (TQM) principles in higher education, with a focus on global, African, and Zambian institutions. The methodology was guided by Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, making sure that there is transparency, replicability, and rigor (Moher et al., 2009)

3.2 Search Strategy

A comprehensive systematic search was conducted in major academic databases, including Scopus, Web of Science, ERIC, SpringerLink, Taylor & Francis Online, JSTOR, and Google Scholar. Additional searches were made in African Journals Online (AJOL) and Zambian Higher Education Authority (HEA) publications to capture region-specific literature. The search covered the period from 2007 to 2025, ensuring that the results were relevant to contemporary trends in higher education quality management. The following search terms were carried out: "Total Quality Management" OR "TQM") AND ("higher education" OR "universities" OR "colleges" "Quality management systems" AND "higher education institutions" and "Global" "Africa" OR "Zambia" "Implementation of TQM" AND "barriers" OR "challenges" and "higher education."

3.3 Inclusion and Exclusion Criteria

3.3.1 Inclusion Criteria:

Peer-reviewed journal articles, book chapters, reports, and conference proceedings.

Studies published between 2007 and 2025.

Studies focusing on TQM principles, quality management systems, or higher education reforms.

Research conducted in the Americas, Europe, Africa, and Zambia for comparative analysis.



3.3.2 Exclusion Criteria:

Articles not in English.

Studies focusing on primary or secondary education.

Non-scholarly sources without clear methodological rigor.

Publications before 2007.

3.4 Sample Size

The initial database search yielded 142 articles. After removing duplicates, 118 articles remained. These were screened by titles and abstracts, reducing the sample to 62 articles. A full-text review was then conducted based on the inclusion and exclusion criteria, which resulted in 41 studies being included in the final analysis.

Table 1

Summary of Studies on TQM in Higher Education

Author(s) & Year	Country / Region	Study Focus	Key Findings / Contributions
Anzules-Falcones et al. (2025)	Latin America	QA systems and labor-market alignment	QA frameworks face challenges adapting to labor market needs due to limited institutional capacity and resources.
Akinyemi & Abiddin (2013)	Nigeria	Quality administration and HRD	Effective quality management improves administrative efficiency, but weak HR systems constrain outcomes.
Al-Zoubi et al. (2023)	Middle East	TQM implementation & community service	Higher TQM implementation is associated with stronger community engagement and service delivery.
Asif et al. (2011)	Asia	TQM conceptual modeling	Proposes a TQM model linking leadership, strategy, processes, and continuous improvement.
Bayraktar et al. (2013)	Turkey	Efficiency of TQM practices	Universities applying structured TQM demonstrate higher operational efficiency.
Bwalya, T. (2023a)	Zambia	QA challenges	QA improves accountability but is hindered by funding shortages and limited staff capacity.
Bwalya, M. (2023b)	Zambia	EMIS & QA	EMIS strengthens QA through data-driven monitoring, though implementation is uneven.
Brits (2025)	South Africa	TQM, Six Sigma & waste reduction	Integration of Lean Six Sigma with TQM enhances efficiency in HEIs.
Cardoso et al. (2018)	Europe	Academic participation in QA	Limited academic ownership reduces the effectiveness of QA systems.
Chikopela & Zulu (2021)	Zambia	TQM adoption barriers	Resistance to change, limited training, and resource shortages constrain TQM implementation.
Daka et al. (2025)	Zambia	QA mechanisms & performance	QA improves administrative performance; effects on learning outcomes remain modest.
ENQA (2015)	Europe	ESG standards	Provides harmonized QA standards supporting accountability across the EHEA.
Grek & Russell (2024)	Europe	Bologna & QA infrastructure	QA reforms strengthen accountability but intensify managerial control.
Guil Gorostidi & Rubio-Arostegui (2026)	Europe	Institutional isomorphism	QA systems promote conformity, contributing to bureaucratization and quality fatigue.
Harvey & Williams (2010)	Global	QA evolution	Reviews 15 years of QA development, highlighting tensions between improvement and compliance.
HEA (2021)	Zambia	National QA standards	Establishes regulatory QA frameworks aligned with international standards.
HEA (2024)	Zambia	QA implementation	Reports increased QA compliance but uneven institutional capacity.
Ibidunni et al. (2023)	Nigeria	TQM & research output	TQM improves governance and research productivity; infrastructure gaps persist.
Idan (2023)	Global	TQM during COVID-19	TQM procedures supported continuity and quality during crisis conditions.
Jarvis (2014)	Europe	QA & managerialism	QA reforms intensify neoliberal governance and reduce academic autonomy.
Mahmood & Ismail (2022)	Malaysia & Pakistan	TQM practices	TQM supports benchmarking, student focus, and institutional competitiveness.



Makola et al. (2025)	South Africa	QMS for support services	QMS improves service efficiency, though academic impact remains indirect.
Moher et al. (2009)	Global	SM	Provides standardized guidelines for systematic reviews.
Muchira & Bett (2018)	Kenya	TQM & satisfaction	Leadership and staff involvement improve service quality and student satisfaction.
Mwiya et al. (2017)	Zambia	QA & student satisfaction	QA positively influences satisfaction, with limited evidence on learning gains.
Papantymou & Darra (2017)	Global	QA review	QA enhances accountability but requires cultural change for effectiveness.
Rosa et al. (2012)	Europe	QMS implementation	QMS improve accountability but increase administrative workload.
Sabet et al. (2014)	Global	TQM vs Six Sigma	TQM supports continuous improvement; Six Sigma improves process control.
Sila & Ebrahimpour (2003)	Global	TQM critical factors	Leadership, culture, and measurement systems determine TQM success.
Sallis (2014)	Global	TQM in education	TQM improves educational quality when embedded in institutional culture.
Shabani et al. (2014)	Africa	Continental QA	QA strengthens accountability but faces funding and governance constraints.
Srikanthan & Dalrymple (2004)	Global	University QM model	Integrates academic values with managerial quality systems.
SAQAN (2024)	Southern Africa	Regional coordination QA	Promotes regional collaboration and harmonization of QA practices.
Texeira-Quirós et al. (2022)	Global	TQM & performance	TQM and innovation positively influence institutional performance.
Venkatraman (2007)	USA	TQM implementation framework	Leadership and faculty involvement are critical to success.
University of Zambia (2018a)	Zambia	QA framework	Establishes institutional QA structures.
University of Zambia (2018)	Zambia	QA excellence	Promotes teaching, research, and community engagement quality.
University of Zambia (2024)	Zambia	QA Directorate	Oversees QA compliance and improvement.
Williams (2024)	Global	Student feedback	Feedback systems are central QA tools, but are inconsistently applied.
Yusuf (2023)	Global	TQM meta-analysis	TQM positively affects service quality and satisfaction.
Zaigham et al. (2021)	Global	TQM barriers	Identifies resistance, bureaucracy, and accreditation pressure as key challenges.

3.5 Data Extraction and Analysis

A structured data extraction template was developed to capture relevant information from each article, including author(s) and year of publication, country or region of study, research objectives and methodology, application of TQM principles, key findings on quality management systems and educational outcomes, and reported barriers and enablers of TQM implementation. The data was analyzed thematically, focusing on four guiding research questions:

How have TQM principles been applied in higher education institutions globally and in Zambia?

What are the key factors influencing the successful implementation of TQM in these institutions?

What impact has TQM adoption had on quality management systems and educational outcomes?

What challenges and barriers do institutions face in implementing TQM principles?

The findings are synthesized in the subsequent sections, with comparisons drawn across regions and emphasis placed on Zambia.



IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Application of TQM Principles in Higher Education Institutions

Overall, the analysis indicates that Total Quality Management (TQM) has emerged as a popular, albeit inconsistent, strategy for enhancing academic quality, accountability, and worldwide standing in higher education. Nonetheless, there seems to be considerable regional variation in how it is interpreted and used. In the Americas, TQM is frequently associated with formal quality assurance procedures and certification, with a focus on faculty involvement and leadership commitment (Venkatraman, 2007; Rosa et al., 2012). Although it is not always evident how far TQM principles go beyond compliance requirements, a large portion of the literature sees these components as non-negotiable. Rapid system expansion and heightened global competitiveness appear to have driven academic institutions in Asia, including China, Japan, Malaysia, India, and Pakistan, toward TQM approaches that prioritize leadership development, teamwork, and student-centered learning (Mahmood, 2022).

European experiences are frequently presented in terms of the Bologna Process, where TQM is in line with objectives including accountability, student satisfaction, and institutional rankings. However, several studies indicate that conventional ideas of academic freedom and management authority continue to clash (Jarvis, 2014). The situation in Africa is more ambiguous. Institutions in nations like South Africa and Nigeria seem to employ TQM primarily to improve equality, accountability, and accreditation procedures; however, implementation is usually hampered by a lack of resources, inadequate training, and organizational change resistance (Ibidunni et al., 2023).

In Zambia, evidence suggests that TQM principles are being applied to enhance teaching quality and institutional governance. Internal Quality Assurance Units (IQAU) have been established by many public and private higher education institutions with the responsibility of keeping an eye on student assessment, staff performance, curriculum development, academic standards, and self-evaluation procedures (HEA, 2023). The Higher Education Authority (HEA), which enforces the Higher Education Act No. 4 of 2013 to encourage some standardization within the industry, usually oversees these units.

Furthermore, to promote consistency and continuous improvement, several institutions have embraced ISO 9001:2015 quality management principles and aligned them with internal policies (Chikopela & Zulu, 2021). Tracer studies, peer reviews, and student feedback systems are common methods for quality assurance, but their application seems inconsistent and occasionally haphazard (Williams, 2024). Strategic Quality Management (SQM) frameworks, which integrate quality assurance and strategic planning, have also been adopted by some universities. These frameworks frequently link academic programs to labor market demands and external accreditation requirements from organizations like SAQAN and other regional frameworks (Southern African Quality Assurance Network, 2024). However, complete and ongoing implementation is still hampered by a lack of resources and qualified workers (Chikopela & Zulu, 2021).

4.1.2 Key Factors Influencing the Successful Implementation of TQM in Institutions

Research from the Americas typically indicates that a few recurrent factors are necessary for TQM to be successful in higher education: dedicated leadership, significant involvement from academic and support staff, and practical measurement systems. When senior executives set clear goals, provide funding, and continuously support quality initiatives, TQM tends to transcend one-off programs and become standard institutional practice. In addition to enhancing abilities, staff development and engagement seem to be important for reducing resistance, particularly when rewards are linked to program evaluation or instructional improvement. Technically speaking, reliable information systems and well-defined metrics like student progress, completion rates, and retention appear to facilitate more sustainable and grounded decision-making (Texeira Quirós et al., 2022).

In Europe, TQM methods have developed substantially in tandem with the Bologna Process, which encourages system comparability and common quality standards. Building great quality cultures requires active staff and student participation and leadership commitment, according to a large body of research (Bayraktar et al., 2013; Rosa et al., 2012; ENQA, 2015). Higher education institutions that make investments in organized feedback systems, such as program reviews, course evaluations, and student involvement on QA committees, frequently claim improved results. However, several studies warn that TQM runs the risk of becoming more symbolic than transformative and existing primarily to meet external accountability requirements in the absence of sufficient finance and continuous staff development (Harvey & Williams, 2010).

Many of these issues are repeated in Asian research, but frequently in systems that are rapidly expanding and becoming more globalized. Instead of approaching TQM as a stand-alone quality exercise, leadership vision seems to be crucial in connecting it to more comprehensive institutional strategy (Asif et al., 2011; Nasim et al., 2019). Instead of depending solely on recurring audits, staff participation and shared responsibility are often emphasized as methods of integrating quality practices into regular teaching and administration (Sabet et al., 2014; Yusuf, 2023). When



institutions seek to base decisions on evidence rather than gut feeling, process management tools, performance indicators, and operational information systems are also highlighted (Nasim et al., 2019). Measurement systems, people, and leadership all grow in tandem rather than separately. TQM appears to work best when people, measurement methods, and leadership all grow together rather than separately, according to the Asian literature.

Research on higher education in Africa presents a more unequal picture that is influenced by both enduring restrictions and facilitating variables. Leadership and governance frameworks seem fundamental: TQM may advance beyond pilot projects when institutional leaders create oversight systems, develop explicit regulations, and match budgets with quality objectives. According to Muchira and Bett (2018) and Idan (2023), efforts tend to be fragmented when leadership is poor or inconsistent. The availability of resources is another persistent problem. Monitoring and process control are frequently compromised by inadequate facilities, poor IT or management information systems, and limited funds, but focused expenditures in EMIS and documentation seem to support continuous improvement initiatives. Organizational culture and staff capability also influence results. While a lack of support typically results in box-ticking, compliance-driven approaches, training, incentives, and engagement assist in internalizing TQM techniques (Muchira & Bett, 2018; Akinyemi, 2013). To convert intentions into quantifiable impact, the "hard" part of Total Quality Management (TQM) measurement and process management relies on outcome indicators, regular data collection, and systems like ISO or EMIS (Idan, 2023; Papanthymou & Darra, 2017). Calls for models more in line with African institutional realities have been sparked by broader contextual issues that further restrict implementation, including policy instability, accreditation pressures, and high student-staff ratios.

Although there is still a dearth of peer-reviewed empirical research on TQM in higher education in Zambia, institutional reports and policy papers indicate that formal quality assurance systems are growing quickly. The adoption of self-evaluations, accreditation processes, and continuous improvement cycles in line with TQM concepts by institutions appears to have been greatly aided by the Higher Education Authority's Zambia Standards and Guidelines for Quality Assurance (ZSG-QA) (HEA, 2021). At the institutional level, frameworks like those employed at the University of Zambia are based on Deming's Plan-Do-Check-Act cycle and input-process-output models. Leadership commitment and resource allocation are frequently cited as essential for integrating quality practices (UNZA, 2018; Daka et al., 2025).

Data-driven quality management is, however, hampered by enduring obstacles such as inadequate budget, unequal staffing levels, and inadequate IT or MIS infrastructure (UNZA, 2024). Monitoring and improvement cycles seem more constant in institutions that have made investments in EMIS, documentation systems, and staff training. Due to staff opposition, a lack of knowledge about QA procedures, and minimal student participation, stakeholder engagement is still a work in progress. Therefore, it is often advised to deepen TQM adoption through focused capacity-building, more organized feedback mechanisms, and clearer incentives (HEA, 2021; UNZA, 2018).

The evidence gap itself is one problem that is particularly noticeable in Zambian literature. Unlike quality assurance evaluations, policy analyses, or research from other sectors, there are still comparatively few peer-reviewed empirical studies that look at complete, institution-wide TQM adoption in universities. Instead, a large portion of the information is derived from conference papers, postgraduate theses, institutional QA reports, and preprints, which restricts the depth of causal and comparative analysis.

4.1.3 Adoption of TQM and Its Impact on Quality Management Systems and Educational Outcomes in Higher Education

Universities throughout America, including the US, Brazil, Mexico, and Canada, are increasingly using Total Quality Management (TQM) to meet accreditation standards, improve student outcomes, and reinforce accountability. TQM is frequently intimately linked to certification cycles and competitive pressures in the US. Research indicates that strategies including benchmarking against peer institutions, continuous evaluation loops, and structured feedback systems might enhance curriculum relevance and student satisfaction, although the benefits seem to vary throughout institutions (Bayraktar et al., 2013). According to Cardoso et al. (2018), national higher education changes in Brazil seem to have promoted a broader adoption of TQM-style practices, resulting in improved monitoring systems and reported improvements in employer perceptions of graduates and student retention. Universities in Mexico that implement ISO 9001-based quality systems claim more transparency, improved documentation, and slight increases in graduation rates. In contrast, Canadian schools claim advances in student involvement, assessment procedures, and curriculum review procedures despite adopting TQM less officially.

The adoption of TQM in Asia appears to be more motivated by rapid growth, internationalization, employability concerns, and accreditation pressures than by tradition. According to research, universities are more likely to match institutional strategy with daily performance when they implement IT-based systems, staff training, and leadership support all at once (Asif et al., 2011). As evidence of TQM gaining traction, some studies highlight tangible improvements, including more systematic evaluation of learning outcomes, more transparent process documentation, and the application of Lean-style projects or PDCA cycles (Sabet et al., 2014; Yusuf, 2023). Positive



outcomes are frequently noted in terms of retention, consistency in assessments, and student satisfaction; however, these improvements seem to be greatest when TQM is included in larger institutional reforms rather than acting alone (Nasim et al., 2019). According to Asif et al. (2011) and Yusuf (2023), the impact seems to be modest when adoption is primarily cosmetic, which is frequently caused by staff reluctance, severe workloads, or inadequate funds.

TQM has mostly evolved in Europe in tandem with the Bologna Process, the European Standards and Guidelines (ESG), and growing international rivalry. According to Rosa et al. (2012), TQM is usually integrated into larger quality assurance frameworks that are designed to match institutional performance with accreditation and benchmarking standards rather than operating as a stand-alone endeavor. The UK's Teaching Excellence Framework, ESG-driven reforms in Spain and Portugal, and more participatory quality models in Nordic systems are well-known examples. Evidence suggests that enhanced performance monitoring, enhanced stakeholder involvement, and reinforced QA mechanisms have positive effects on student happiness, curricular relevance, and employability (Rosa et al., 2012). However, detractors warn that if quality standards are expanded, academic personnel may have more administrative responsibilities and, in certain situations, less room for innovation and academic autonomy.

TQM implementation in African higher education seems to be influenced by the need for accountability, the need to compete internationally, and the system's quick expansion. To support continuous improvement and the use of data in decision-making, national QA agencies and accrediting councils have encouraged organized processes such as institutional self-assessment, program review, and corrective action planning (Shabani et al., 2014; ENQA, 2015). Internal quality assurance departments and formal quality management systems have been further promoted by regional initiatives. These initiatives have improved institutional procedures, especially those related to accreditation, audits, and evaluation, and some universities have started to depend more on information technology for planning and oversight (Makola et al., 2025). Adoption of TQM and better learning outcomes, however, continue to have conflicting results. While case studies from Nigeria and South Africa show improvements in research output, service delivery, and student satisfaction, many public universities still struggle with issues like staff resistance, large class sizes, and a lack of funding, which lessens the impact on teaching and learning outcomes (Makola et al., 2025). While political meddling, poor evaluation cultures, and limited staff buy-in continue to be obstacles, leadership commitment, operational QA units, donor or government assistance, and investment in MIS appear as important enablers (Shabani et al., 2014; ENQA, 2015). Therefore, rather than being truly transformative, TQM improvements in a large portion of the region are frequently characterized as compliance-oriented.

In Zambia, initiatives to modernize institutional quality assurance, external accountability constraints, and regulatory change have all played a major role in the adoption of TQM-aligned practices in higher education. Through the Zambia Standards and Guidelines for Quality Assurance (ZSG-QA), which mandate that institutions implement systematic quality processes, conduct self-assessments, pursue program accreditation, and establish internal QA units reflecting fundamental TQM principles like continuous improvement and stakeholder engagement, the Higher Education Authority (HEA) has played a pivotal role (HEA, 2021; HEA, 2024). In response, academic institutions like UNZA have established QA directorates and released institutional frameworks that specifically mention PDCA cycles and process documentation that aligns with TQM principles (UNZA, 2018; UNZA, 2024). In practice, this has meant that TQM entered the Zambian system primarily through certification criteria and top-down policy instruments before being operationalized through institutional QA structures and strategic planning procedures.

These TQM-aligned approaches have so far had more noticeable influence on internal quality management systems than on quick, significant gains in student outcomes. The creation or strengthening of QA directorates in charge of self-evaluation, program review, and internal audit activities that professionalize quality work and reflect TQM's emphasis on distinct process ownership is frequently mentioned in institutional reports (UNZA, 2018; HEA, 2021). To guarantee repeatability and auditability, several institutions have also embraced continuous improvement cycles and more formal documentation. PDCA processes, planned course reviews, and standard operating procedures are frequently cited in QA frameworks (UNZA, 2018; Daka et al., 2025). Feedback loops that are essential to TQM have been created because of departments being pushed to close gaps and carry out corrective action plans via external accreditation processes and the engagement of external examiners (HEA, 2021; Bwalya, 2023a).

Data collecting and reporting have also shown incremental advances, especially in areas where institutions have made investments in management or education information systems. Under such circumstances, QA units report being better able to monitor metrics like completion, progression, and pass rates, which enables more focused interventions in underperforming programs (Bwalya, 2023a; Daka et al., 2025). However, reported impacts on educational outcomes are still small and mostly in the middle. QA procedures have made institutional performance measurements more visible, which has made it simpler to spot differences between programs (UNZA, 2018). These benefits have not yet been regularly shown at the system level, but there are early, mostly anecdotal indications of enhanced student experience in particular units, frequently connected to staff development programs or updated assessment processes (Mwiya et al., 2017; Daka et al., 2025; HEA, 2021). In general, there is still a dearth of long-term, peer-reviewed research that directly connects TQM deployment to long-term gains in learning outcomes or



graduate employability in Zambian higher education. Instead of providing conclusive results at the student level, most of the studies that are currently accessible highlight improvements in procedures, paperwork, and compliance.

4.1.4 Challenges and Barriers Encountered by Higher Education Institutions when Implementing TQM Principles?

Higher education institutions in America seem to encounter a common set of challenges while implementing TQM principles. Academic staff resistance is one persistent problem, since they frequently perceive quality management as excessively borrowing from corporate logic and interfering with academic freedom. Some scholars contend that TQM adds layers of bureaucracy without obvious benefits for teaching or research, which appears to have hindered the adoption of continuous improvement cycles in the United States (Zaigham et al., 2021). Another issue is the demand for resources. Some Latin American universities, especially those in Mexico and Brazil, often have limited resources, which makes it difficult for them to invest in dependable data systems or set up well-resourced quality assurance departments. At the same time, it seems that institutions in the area have trouble striking a balance between inventiveness and responsibility. While excessive standardization is helpful for accreditation and comparison, it may unintentionally impede experimentation in research and education (Anzules-Falcones et al., 2025).

The Bologna Process and the European Standards and Guidelines for Quality Assurance (ESG) have played a major role in the adoption of TQM in Europe. Although these frameworks have contributed to the harmonization of quality procedures, they have also created new conflicts. Countries like Germany, the UK, and Spain frequently worry about the perceived loss of institutional autonomy since strict quality standards may make it more difficult for universities to modify their operations to meet regional goals (Rosa et al., 2012). There is also clear staff resistance, especially among academics who see TQM as a managerial intrusion that puts performance metrics ahead of academic ideals. This is on top of the administrative burden of ongoing reporting, documentation, and audits, which some institutions claim causes "quality fatigue." Since successful TQM usually necessitates consistent investment in technology, monitoring systems, and training, financial limitations make adoption much more difficult, particularly in regions of Eastern and Southern Europe.

In African higher education systems, whose structural and operational limitations are more difficult to overlook, the difficulties are frequently more severe. One significant obstacle is the lack of resources; many colleges have tight budgets, depend on outdated facilities, and experience ongoing staff shortages (Shabani, 2014). It becomes challenging to set up thorough QA units or sophisticated monitoring systems in such circumstances. Another problem is staff buy-in. TQM is seen as being externally enforced on many institutions, frequently by governments or accrediting organizations. This might result in superficial compliance rather than true commitment (Shabani et al., 2014). Institutional autonomy is further undermined by political meddling and inadequate governance frameworks, especially when quality assurance is employed more as a control mechanism than as a tool for improvement (ENQA, 2015). The absence of trustworthy data systems exacerbates these problems by making it difficult to maintain evidence-based planning and assessment. As expected, there is a tendency for TQM adoption to be uneven throughout the continent, with private institutions reporting better results than underfunded public universities.

These difficulties in Zambia are influenced by local circumstances as well as more general continental trends. Human and financial resource scarcity is still a major issue. Many colleges find it difficult to modernize their teaching and learning materials, pay for staff training in quality management, or make investments in information technologies that facilitate continuous monitoring and assessment (Chikopela & Zulu, 2021). Because of this, rather than representing a comprehensive TQM approach, quality assurance procedures frequently become disjointed and compliance focused. Academic staff resistance to change also seems to be a factor, especially when TQM is viewed as an administrative burden that has no bearing on classroom instruction. Rapid increases in student enrollment have further strained current quality systems and made it more difficult to uphold standards without corresponding increases in academic staff or infrastructure (HEA, 2021). Some institutions have inadequate accountability systems and intermittent leadership commitment, which means that quality initiatives are primarily motivated by accreditation deadlines or donor requirements rather than being ingrained in the institution's daily culture. When combined, these elements indicate that although TQM has the potential to enhance higher education in Zambia, resolving underlying resource, governance, and cultural difficulties is probably necessary for a significant and long-lasting impact.

4.2 Discussion

4.2.1 Application of TQM Principles in Higher Education

According to the review, higher education systems around the world, in Africa, and even in Zambia, employ Total Quality Management (TQM) in very varied ways. Although the fundamental concepts are similar, local context seems to have a significant impact on how TQM is implemented and what it accomplishes.

TQM fits well into frameworks for accountability and accreditation throughout the Americas, particularly in the US and Canada. The competitive nature of higher education in North America, where institutions are always under



pressure to show relevance to labor market demands, is probably reflected in this attitude. In this setting, the literature consistently identifies faculty involvement and leadership commitment as key TQM facilitators (Venkatraman, 2007). However, the focus changes across much of Latin America. Universities in nations like Brazil and Mexico seem to implement TQM primarily to satisfy international accreditation standards, indicating that pressures from internationalization rather than internal reform agendas often drive adoption.

Results from Asia emphasize global competitiveness and student-centered learning more. TQM is frequently used to facilitate benchmarking and performance comparison in nations like India, Malaysia, and Pakistan, but Chinese and Japanese institutions place more emphasis on long-term sustainability and leadership (Mahmood & Ismail, 2022). Asian universities appear more likely than those in the Americas to integrate TQM into teaching and learning procedures as well as administrative systems, resulting in a more comprehensive approach to pedagogy and governance. The quick growth and globalization of higher education throughout the region is probably reflected in this pattern.

Experiences in Europe strongly connect TQM to the Bologna Process and more general initiatives to standardize quality control. Universities seem to struggle to strike a balance between research output and teaching quality in systems like those in the UK, Germany, and Spain; this problem is especially noticeable in research-intensive universities (Grek & Russell, 2024). Academic independence and administrative quality controls are frequently at odds in European universities, in contrast to regions of Asia where TQM is more obviously integrated into pedagogical practice. These conflicts imply that the acceptance and adaptation of TQM are significantly influenced by long-standing institutional cultures.

The adoption of TQM in Africa is influenced by more severe resource and structural limitations. While TQM seems to have been introduced primarily to meet accreditation requirements in Nigeria, it has been used in South Africa as part of post-apartheid reforms aimed at enhancing equity and accountability (Brits, 2025). Sustained implementation is nevertheless hampered by a lack of financing, packed classrooms, and opposition to organizational change. TQM implementation in many African systems is more reactive, focused on compliance, than proactive or reform-driven when compared to Asia and Europe.

In Zambia Research indicates that TQM was implemented to enhance governance and raise the caliber of instruction; however, due to a lack of funding and qualified staff, implementation is still hindered (Chikopela & Zulu, 2021). Although this reflects larger trends in Africa, it also highlights the need for focused leadership development and capacity building that is adapted to the regional higher education environment. Systemic obstacles must be removed before significant educational benefits may be anticipated in Zambian institutions, in contrast to North America and some regions of Asia, where faculty participation and innovation frequently support TQM success.

In summary, the results show that leadership, faculty involvement, sufficient resources, and alignment with regional and international agendas are critical to the success of TQM in higher education. The regional diversity shows that although TQM is a universal framework, contextual adaptability is crucial to its effectiveness. Zambia should improve the incorporation of TQM into its higher education system by taking lessons from European accountability frameworks and Asian holistic models while addressing resource and capacity issues unique to Africa.

4.2.2 Key Factors Influencing the Successful Implementation of TQM in Institutions

When considered collectively, the research indicates a uniform set of elements influencing the implementation of Total Quality Management (TQM) in higher education institutions throughout the Americas, Europe, and Asia. Three issues consistently come up: the availability of practical measurement and information systems, staff involvement and capacity building, and leadership commitment. The tone seems to be set by leadership. According to research from the Americas and Europe, TQM is more likely to go beyond short-term projects and become a regular part of institutional practice when senior leaders are visible, thoughtful, and willing to match quality initiatives with governance structures, budgets, and planning cycles (Bayraktar et al., 2013). Similar trends may be seen in the Asian literature, where the transition from pilot projects to longer-term strategies is frequently signaled by strong leadership paired with well-defined quality policies and execution strategies (Asif et al., 2011). This could imply that TQM only becomes popular when it is incorporated into regular decision-making processes rather than being viewed as an add-on.

Leadership and the role of people are closely related. According to research, incentives, systematic training, and employee engagement are crucial for creating what is commonly referred to as a "quality culture" in all regions (Rosa et al., 2012; Sabet et al., 2014). There are practical ways to lessen resistance and promote a sense of ownership, like quality teams, communities of practice, or focused professional development. Studies from Europe and Asia emphasize how important it is to include the opinions of many stakeholders in governance processes, such as employers and students, to give quality initiatives credibility and increase their applicability (Papanthymou & Darra, 2017). This argument is echoed, frequently more sharply, in African studies. When staff buy-in is low, TQM runs the



risk of turning into a compliance exercise, something done for audits rather than as a tool for continuous improvement, according to research from Kenya and Nigeria (Muchira & Bett, 2018; Akinyemi, 2013).

Information systems, process management, and measurement make up the third theme that runs across the literature. Clearly defined indicators, trustworthy data collection, and alignment with institutional agendas are essential for maintaining TQM throughout time, according to evidence from the Americas, Asia, and Africa (Idan, 2023). Investing in Educational Management Information Systems (EMIS) or comparable platforms puts institutions in a better position to monitor procedures, track student development, and link data to resource and policy decisions. Quality initiatives may appear disjointed and transient when such systems are lacking or inadequately integrated (Idan, 2023). In this way, the "hard" infrastructure of data and process management appears to play a major role in converting leadership aspirations and employee engagement into outcomes.

While Zambia has challenges that are hard to overlook, it also reflects many of these worldwide trends. With QA frameworks and internal units becoming standard throughout universities, it is evident that external regulatory pressure, especially from the Higher Education Authority (HEA), has forced institutions toward TQM-style quality management (HEA, 2021; UNZA, 2018). International practice is tightly aligned with programs for staff training, leadership support, and the formalization of QA organizations. However, enduring obstacles still exist. Progress is still being hampered by a lack of resources, inadequate IT and MIS infrastructure, and unequal stakeholder participation. Staff members' uneven knowledge of QA procedures, resistance to change, and low student involvement all point to TQM's partial rather than complete internalization in many institutions. Assessment is made more difficult by the dearth of peer-reviewed empirical research on thorough TQM implementation, which leaves a large portion of the evidence at the level of institutional and policy reporting.

Overall, it points out that TQM is more likely to work when people, measurement systems, and leadership all grow together rather than separately. The realities of African, especially Zambian higher education, particularly budget limitations and infrastructure gaps, call for more flexible, context-sensitive approaches, even though worldwide research offers solid evidence for these enabling conditions. The research gap itself is perhaps the most apparent. There is a definite need for more research on how international TQM principles might be used in institutionally varied and resource-constrained environments, as there are currently few empirical studies looking at full-scale TQM implementation in Zambian universities.

4.2.3 Adoption of TQM and Its Impact on Quality Management Systems and Educational Outcomes in Higher Education

Stronger quality management systems (QMS) are typically reported by universities in the Americas, Europe, and Asia that have adopted TQM, whether through certification standards or more unofficial improvement cultures. According to Bayraktar et al. (2013), Rosa et al. (2013), and Asif et al. (2011), these improvements typically manifest in quite practical ways, such as tighter internal audits, more frequent feedback mechanisms, clearer process documentation, and closer alignment between daily operations and accrediting criteria. When considered collectively, this data seems to lend credence to the notion that TQM primarily improves accountability and establishes fundamental quality infrastructure rather than independently revolutionizing teaching and learning.

In terms of educational outcomes, the situation becomes more complicated. According to research, TQM implementation is linked to increased student satisfaction, retention, and completion rates in some regions of the Americas and Europe (Sabet et al., 2014). Assessment reliability, overall student experience, and occasionally graduation rates have all improved in Asian schools that have adopted more comprehensive approaches that combine staff development, IT-supported monitoring, and leadership assistance (Sabet et al., 2014; Yusuf, 2023). However, a lot of writers advise caution. Improvements in curriculum, improvements in classroom infrastructure, or ongoing teacher development are examples of parallel reforms that frequently appear to be necessary for results. In this way, rather than directly influencing learning outcomes, TQM may function more as an enabling framework.

African studies add another level of intricacy. Institutional QMS has undoubtedly been strengthened by TQM-aligned practices, which are frequently supported by regional or national QA bodies. Several systems currently employ systematic curriculum reviews, regular self-evaluations, and the establishment of QA directorates (Shabani et al., 2014). However, there is still little evidence of direct impacts on graduate employability or student comprehension. Large class numbers, staff resistance, political pressure, and inadequate budgets are examples of persistent limitations that seem to mitigate the effects of these reforms. Consequently, TQM might appear procedural at times, concentrating on fulfilling external demands instead of cultivating a deeply ingrained quality culture (Makola et al., 2025).

Zambia reflects both its own local reality and many of these continental patterns. TQM-aligned procedures have been greatly aided by the Higher Education Authority (HEA) and its Zambia Standards and Guidelines for Quality Assurance (HEA, 2021). Most institutions today employ PDCA cycles, have QA units, and carry out accreditation-related self-evaluations. These actions have aided in strengthening accountability frameworks,



formalizing documentation, and increasing reporting transparency (UNZA, 2018; Daka et al., 2025). Early signs point to moderate gains in student satisfaction and administrative efficiency in certain schools.

However, there is still a dearth of conclusive proof of enhanced learning outcomes or graduate employability. Rather than quantifiable increases in student achievement across institutions, most cited improvements are intermediate, better monitoring systems, clearer course files, and more uniform QA procedures. The extent to which quality processes translate into classroom-level change is still limited by a lack of resources, inadequate MIS platforms, and inconsistent staff buy-in. Additionally, there is a significant evidence gap: few long-term, peer-reviewed studies in Zambia have thoroughly investigated the relationship between TQM adoption and educational outcomes, leaving many assertions based more on institutional reporting than on systematic evaluation (Daka et al., 2025).

Overall, research from around the world indicates that TQM consistently improves quality management systems in higher education, but its impact on academic results is more indirect and more context-dependent. TQM has assisted in institutionalizing quality processes in Africa, especially in Zambia, although its influence on student-level outcomes seems to be restricted by a lack of resources and a partial cultural adoption (Gorostidi & Rubio-Arostegui, 2026). This highlights the need for empirical, context-sensitive research that goes beyond procedures to investigate how and when TQM can improve learning, retention, and graduate employability over time.

4.2.4 Challenges and Barriers Encountered by Higher Education Institutions when Implementing TQM Principles?

According to the literature, universities all around the world have a common set of difficulties when attempting to use TQM, while the degree and type of these difficulties differ greatly by location. Academic staff resistance is a common occurrence in the Americas. For example, many academics in the US seem to see TQM as a corporate management technique that conflicts with collegial governance and academic freedom traditions (Al-Zoubi et al., 2023). This cynicism often hinders significant staff involvement in quality projects and slows the adoption of continuous improvement approaches. In other parts of the region, especially in Brazil and Mexico, the issue is frequently more pragmatic than intellectual. Universities find it challenging to maintain QA units or invest in the fundamental data and information systems required to enable TQM due to persistent underfunding, deteriorating infrastructure, and staff shortages (Al-Zoubi et al., 2023).

The adoption of TQM in Europe has been significantly influenced by external frameworks like the ESG standards and the Bologna Process. Although these efforts have contributed to the development of a common quality language among systems, they also appear to create new conflicts. Highly uniform quality standards might limit institutional autonomy and lessen space for context-specific methods, according to universities in nations like Germany, Spain, and the UK. This has eventually resulted in what some refer to as "quality fatigue," as employees feel overburdened by compliance activities and reporting obligations rather than encouraged to enhance teaching and learning (Gorostidi & Rubio-Arostegui, 2026). Resistance is particularly apparent when academic judgment is thought to be subordinated to performance measures in quality management. Financial constraints limit investment in staff training, monitoring equipment, and digital support systems, which creates an additional layer of complexity, especially in regions of Eastern and Southern Europe.

In many parts of Africa, the problems seem more systemic and, in certain situations, more serious. Comprehensive TQM adoption is challenging to maintain due to a lack of finances, overcrowded classrooms, old infrastructure, and staff shortages (Shabani et al., 2014). Furthermore, TQM is thought to be externally imposed by donors or regulators rather than developing within, which frequently results in resistance from both academic and administrative workers. Quality assurance can become a control mechanism rather than a vehicle for institutional learning and improvement due to weak governance systems and political meddling (ENQA, 2015). Evidence-based decision-making is also compromised by the lack of trustworthy data systems, which results in uneven adoption. Interestingly, private universities frequently advance more quickly than public universities that are subject to stricter budgetary restrictions.

Zambia is subject to its own unique challenges, yet it also exhibits many of these continental trends. Opportunities for capacity building, technological investment, and the upkeep of efficient quality systems are restricted by a lack of funding and human resources (Chikopela & Zulu, 2021). Rapid increases in student enrollment have put extra pressure on already overburdened systems, frequently without corresponding increases in academic staff or infrastructure (HEA, 2021). Instead of integrated, institution-wide TQM approaches, some institutions' leadership commitment to quality appears to be uneven, leading to fragmented, primarily compliance-driven QA processes. Together, these difficulties imply that while TQM has the potential to raise the standard of higher education in Zambia, its success will probably depend on resolving more fundamental structural, cultural, and resource-related issues in addition to formal quality changes.



V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

According to the review, more higher education institutions worldwide, including Zambia, are implementing Total Quality Management (TQM) concepts to enhance institutional quality, accountability, and competitiveness. Although implementation patterns differ by region, some elements consistently seem to be crucial: active stakeholder participation, leadership commitment, resource availability, and functional quality management systems. Research shows that TQM tends to increase operational effectiveness, fortify internal quality assurance procedures, and, in certain situations, increase student happiness and retention. However, its impact on learning outcomes and employability is less clear-cut and appears to be significantly impacted by personnel buy-in, institutional capability, and larger contextual limitations. Universities in Zambia, for instance, have made strides toward formalizing QA procedures and TQM-aligned governance structures. However, the obvious influence on students is constrained by a lack of rigorous, peer-reviewed data on educational results, human capacity deficits, and resource shortages. A recurrent theme in the literature is that TQM can only produce significant improvements when leadership, people, and measurement systems are developed collaboratively and when practices are carefully tailored to local institutional realities rather than being implemented as one-size-fits-all solutions.

5.2 Recommendations

The following recommendations are made to improve the application of Total Quality Management (TQM) principles in Zambian higher education institutions and to address the challenges that have been identified.

Institutional leadership and the Higher Education Authority (HEA) need to partner and provide training to institutional staff members, demonstrating to them how TQM applies to their daily tasks. A true quality culture can be gradually established, and resistance can be lessened with modest rewards or acknowledgment for accomplishments. Institutions need to invest in realistic EMIS or data systems that monitor students' progress, retention rates, and results management. Universities should give this top priority. Making well-informed, fact-based decisions, as opposed to relying solely on intuition, is made simpler by trustworthy data.

When institutional leaders not only talk the talk, quality management performs at its peak. Integrating QA concepts into planning, budgeting, and governance makes it abundantly evident that quality is a fundamental institutional priority rather than a choice. Industry input and student voices are frequently underutilized in most of the higher education institutions in Zambia. Active student participation on QA committees, structured feedback systems, and employer/industry interaction can all contribute to more relevant curricula and more workforce-ready graduates.

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Sustainability challenges of matching grant-funded enterprises: Qualitative perspectives from smallholder farmers and implementers

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ABSTRACT

Despite substantial investment in matching grant programmes to promote rural enterprise development, many funded farming enterprises fail to remain sustainable beyond the funding period. This study examines the reasons why some farming enterprises funded through matching grants fail to remain sustainable in Chipili District, Zambia. The study seeks to answer the question: what challenges prevent matching grant-funded farming enterprises from succeeding in the long term? The research is guided by principal-agent theory, the sustainable livelihoods framework, and institutional theory. The target population were beneficiary farmers of the Matching Grant Facility of Chipili District and the government officers. The research design employed was qualitative, and a total of nineteen (19) participants participated in semi-structured interviews and three (3) focus group discussions, who were sampled in a purposive manner. Thematic analysis was used to analyse data in order to establish common trends that affect the sustainability of a farming enterprise. The results indicate that matching grants assisted others to initiate and grow their businesses; however, most of the projects did not survive, owing to a number of challenges. These included poor access to markets, lack of certified seed, weak exit strategies, and delays in administrative procedures. Other challenges were low financial literacy, inadequate training, limited access to additional finance, poor stakeholder involvement, weak leadership, and conflicts within farmer groups. The study concludes that providing funds alone is not enough to ensure the success of farming enterprises. Based on the findings, the study recommendations are continued capacity building, stronger institutional support, and clear exit strategies to improve the sustainability of matching grant-funded enterprises. The findings are useful for policymakers and development practitioners involved in the design and implementation of matching grant programmes aimed at supporting sustainable rural livelihoods.

Keywords: Agricultural Development, Enterprise Sustainability, Matching Grants, Project Failure, Rural Livelihoods

I. INTRODUCTION

Matching grant schemes have emerged as a prominent strategy in agricultural development programs, designed to catalyze investment, stimulate rural enterprise growth, and reduce poverty among smallholder farmers (Amukoa, 2023; WorldBank, 2021). By requiring beneficiaries to co-finance part of the investment, such grants aim to promote ownership and accountability while overcoming liquidity and credit access barriers. In Zambia, government agencies and development partners have deployed matching grants to promote agribusiness, value addition, and market integration (Mabiso et al., 2020). Despite these intentions, the long-term sustainability of enterprises funded through such schemes remains uncertain, as anecdotal evidence suggests that many enterprises struggle to survive once donor or government support ceases. This raises critical questions about the underlying challenges that influence whether matching grant-funded enterprises persist or fail in rural Zambia. (Campos et al., 2014)

One of the most prominent challenges threatening sustainability is limited access to working capital and financial services beyond the initial grant period (Burki, 2015). While grants provide a temporary injection of resources, many smallholder farmers face difficulties securing credit for reinvestment, scaling operations, or absorbing market shocks. (Campos et al., 2014). Weak linkages with financial institutions, high interest rates, and collateral requirements often leave these enterprises vulnerable to collapse once grant funding is exhausted. Without continuous access to affordable finance, enterprises may lack the liquidity required to purchase inputs, maintain equipment, or respond to seasonal fluctuations in demand. This financial fragility undermines the intended catalytic effect of matching grants and perpetuates dependency on external support (Mundia et al., 2023).



Beyond financial hurdles, the sustainability of grant-funded enterprises is heavily influenced by the technical and managerial competencies of smallholder farmers. Many beneficiaries enter grant programs with limited business planning skills, record-keeping practices, or exposure to modern production techniques (Lee, 2017). Although some programs integrate capacity-building components, these are often short-term and insufficiently tailored to local contexts. Consequently, enterprises may fail to adapt to changing market conditions, diversify products, or achieve operational efficiency (Mundia et al., 2023). Weak managerial capacity also constrains the ability to reinvest profits strategically, manage risks, or maintain compliance with regulatory requirements, further eroding long-term viability. (Scoones, 2015)

Market access and institutional dynamics represent another critical determinant of enterprise sustainability. Smallholder farmers often operate in poorly structured markets characterized by limited buyer competition, high transaction costs, and volatile prices (Mundia et al., 2023). Even when production levels increase, the absence of reliable off-take agreements, transport infrastructure, and value chain integration reduces profitability and discourages reinvestment. Moreover, institutional barriers such as bureaucratic grant disbursement procedures, limited post-grant monitoring, and weak coordination between implementing agencies exacerbate challenges. Without supportive institutional frameworks and market linkages, matching grants risk creating enterprises that are supply-driven but disconnected from demand realities.

The discussion of these issues highlights that the sustainability of complementary grant-funded enterprises cannot be ensured by financial transfers only. To be effective, matching grants have to be supplemented by broader systems that encourage financial inclusion, technical skills, managerial capacity, and market access to have a lasting effect. It is important to enhance farmer capacity, enhance connection with financial institutions and value chain players and to establish effective post-grant monitoring mechanisms, therefore. Moreover, it is necessary to have programme designs that consider the local conditions and enhances resilience to shocks like climate variability and market changes. It is against this backdrop that the objective of this study is to analyze the major issues that lead to the failure of matching grant-funded farming enterprises in Chipili District, Zambia. In particular, the study is aimed at determining structural, institutional, and operational issues that impede the long-term sustainability of such enterprises.

1.1 Research Objectives

The objectives of this study were to:

1. Examine the key challenges affecting the long-term sustainability of farming enterprises funded through matching grants in Chipili District, Zambia.
2. Explore the experiences of beneficiary farmers and implementers regarding the implementation and outcomes of matching grant-funded farming enterprises

II. LITERATURE REVIEW

2.1 Theoretical Review

Three principal theories (principal-agency theory, the Sustainable Livelihoods Framework and institutional theory) would be used to explain the design and outcomes of matching grant programs in agricultural development. All these theories assist in understanding the alignment of incentives and sustaining livelihoods, as well as the influence of governance systems on the outcomes of programs.

The reasoning behind matching grants can be associated with the principal-agent theory, premised on the idea that cost-sharing decreases moral hazard by aligning incentives and motivating beneficiaries to commit (Shah, 2020). But under conditions of weak institutions and high poverty, incentive alignment cannot be relied upon to enhance sustainability, because beneficiaries might have no capacity or enabling environment to sustain investments in the long run (Ola et al., 2019).

Additionally to the principal agent theory, the Sustainable Livelihoods Framework (SLF) is a more detailed framework that can be used to evaluate matching grant outcomes (Natarajan et al., 2022). The SLF points to the role of access to a variety of types of capital in livelihood sustainability based on the idea that financial, human, social, physical and institutional forms of capital are interdependent as opposed to the reliance on financial inputs (Natarajan et al., 2022). In this view, matching grants primarily lead to financial and physical capital, yet the effectiveness of these efforts in the long run is determined by the complements of institutional support, access to markets and the maturation of human skills and capacity.

The institutional theory also points out the role of governance institutions, administrative capacity, and regulatory settings in determining the results of the programs (Risi et al., 2023). It is possible to weaken implementation with weak institutions in the form of sluggish disbursements, insufficient monitoring, and poor stakeholder coordination (WorldBank, 2016). Combined, those theoretical viewpoints imply that matching grants are to be examined within larger livelihood systems and institutional systems instead of being assessed as financial interventions on their own.



2.2 Empirical Review

2.2.1 Key Challenges Affecting the Long-Term Sustainability of Matching Grant–Funded Enterprise

Matching grants (MGs) are financial support initiatives aimed at assisting small businesses and farmers by lessening the level of money that is required by them to invest but motivate them to invest alongside. The empirical research demonstrates that MGs are able to enhance enterprise performance, income, and assets, however, the outcomes differ based on the context and the program design. McKenzie et al. (2017) examined small businesses in Sri Lanka and India and reported that MG recipients had better chances to survive and implement new technologies in the short term. Nevertheless, the positive impacts tended to wear off once the grants were over, which indicates that the sustainability of such programs is uncertain in the long term.

There are also positive effects in Africa that are rigorously demonstrated in specific circumstances. Hossain et al. (2022) compared a horticultural MG programme in Rwanda with a fuzzy regression discontinuity design. The researchers determined that grant recipients had increased horticultural revenue, total household revenue, employed labour and asset holdings in comparison to non-recipients. The findings suggest that when the beneficiaries use their funds productively, MGs can generate quantifiable long-term returns. Similar results were reported by Jung and Hajjar (2023), analyzing MG programs in Ghana and Tanzania, as the authors observed that the success of the programs is determined by the local governance, integration into the value chains, and the support of the policies in general. Kolavalli et al. (2020) highlighted the importance of time and design: interventions in value chains can bring better results when integrated with training, market connections, and technical support to smallholders.

The further evidence indicates that MGs are effective with a complementary support. The study by McKenzie et al. (2017) established that funding of MGs, which financed consulting and business advisory services, enhanced innovation, capital investments, and marketing activities among small firms. Ullah et al. (2024) continue to note that the enterprise growth, technology adoption, and business expansion can be facilitated by matching grants provided that such beneficiaries are willing to co-invest in productive assets. Sberro-Kessler (2019) present an example of India, where the integration of smallholders into market systems provided by value addition can increase the incomes of farmers up to 86%. Despite these benefits, MG programs face financial, institutional, market, administrative, and social challenges that threaten sustainability:

Financial Constraints to Sustainability: Co-financing requirements disproportionately exclude smallholders with limited assets and weak access to formal credit markets. The fundamental paradox of matching grants lies in requiring co-financing from farmers who lack access to formal financial services. Studies indicate that asset poverty significantly constrains smallholder participation, with household asset levels strongly predicting access to agricultural credit in Zambia. High interest rates exceeding 30% annually make borrowing prohibitively expensive for meeting matching requirements (Mainza & Hachinene, 2024)

Agricultural production cycles create unique challenges, as farmers must meet matching grant payment schedules despite seasonal income patterns and climate-related risks. Poor road conditions drive up transportation costs for farmers, eating into their profits, while climate variability increases financial risk in rain-fed systems (Ajayi et al., 2024)

Institutional Capacity Limitations: Government agricultural departments often lack adequate human resources and technical expertise for effective program implementation (Antwi-Agyei & Stringer, 2021). Studies identify inadequate institutional capacity and legal frameworks as barriers to policy implementation, with significant provincial and district-level variations in capacity. Effective matching grant utilization requires comprehensive technical assistance, yet Zambia's agricultural extension system faces severe resource constraints with extension worker-to-farmer ratios far exceeding recommended levels (Chavula & Yali, 2022).

Market Access and Integration Barriers: Research identifies barriers to market access for smallholder farmers and poor market integration, including quality standards, volume requirements, and high transaction costs that limit formal value chain participation (Ezeudu & Obimbua, 2024). Post-harvest losses estimated at 20-30% for major crops significantly reduce investment returns. For instance, conducted in Ethiopia the findings demonstrated that 25.81% perceived annual average post-harvest losses of crops were obtained with considerable variation across the crop types. (Debebe, 2022). Limited market intelligence affects farmers' ability to make informed investment decisions, often resulting in production for oversaturated markets or failure to meet quality requirements

Administrative and Procedural Complexities: Complex documentation requirements and language barriers systematically exclude vulnerable farmers with limited formal education (WorldBank, 2016). Bureaucratic procedures often fail to account for agricultural timing requirements, creating misalignment between fund availability and seasonal investment needs. (Sberro-Kessler, 2019). Extensive monitoring and reporting requirements can overwhelm smallholder farmers and rural institutions with limited administrative capacity, emphasizing financial compliance over developmental outcomes (Sberro-Kessler, 2019).

Social and Organizational Factors: Social and organizational dynamics also influence matching grant outcomes. Weak group leadership, limited collective action, and intra-group power struggles can undermine enterprise



management and accountability. Programs emphasizing gender and youth focused opportunities face implementation challenges, as women farmers encounter limited land ownership rights and restricted credit access, while youth lack farming experience and collateral (Msangi et al., 2024). Challenges exist in uptake of new technologies, including drought-tolerant seeds and solar irrigation, as matching grants often promote practices conflicting with traditional farming systems and cultural preferences (Steinke et al., 2022). The literature reviewed indicates that financial, institutional, market, and social factors affect matching grant sustainability due to their interconnection. Although matching grants can trigger investment and establishment of enterprises, their sustainability in the long term is based on the wider support systems which are not limited to financial aid. Most current literature in Zambia is based on program reports and short-term evaluation, which provide little information on the sustainability of enterprises and experiences of beneficiaries after the projects.

2.2.2 Experiences of Beneficiary Farmers and Implementers Regarding Implementation and Outcomes of Matching Grant–Funded Farming Enterprises

The empirical evidence on the topic of matching grants has shown that the beneficiaries tend to portray positive attitudes towards the aid they obtain, especially when the grants have facilitated the investment in productive assets and incomes generating activities. As an example, matching grant programmes have been evaluated in Africa with reports that the smallholders are appreciating grant funds as a means of improving access to productive inputs and market opportunities which creates better livelihoods outcomes to the groups and individuals who participate.

Nonetheless, some studies observe barriers that define the experiences of beneficiaries. There have often been shared co financing requirements that require farmers to invest a large share of the total investment, which has often been viewed as a burden particularly to poorer smallholders with less access to formal credit. This difficulty can either lock out the most in need or put a strain on the household budget, with grants programmes often relying on matching loans or strenuous individual contribution. (Naidoo & Khan, 2024)

Another common theme is training and technical assistance gaps. Although most of the matching grant schemes cover the business/technical skills development, the actual training service delivery is usually uneven. Where training is strong, beneficiaries cite enhanced skills that facilitate enterprise operations; where training is weak or is more procedural, farmers say they are ill equipped to cope with and grow their ventures. (Fallas Conejo & Sánchez, 2024)

Implementer and beneficiary experiences are also influenced by monitoring and follow up processes. It is reported that the lack of effective monitoring systems and post grant evaluation lowers programme accountability and learning. The absence of systematic monitoring of enterprise performance post grant disbursement gives implementers and beneficiaries little feedback on the long-term consequences and hence makes it hard to modify programme designs to become sustainable. (Ndombi et al., 2020)

The empirical studies of how and why matching grant-funded farming enterprises succeed or do not succeed once project support is withdrawn are also clearly lacking, especially through the lens of beneficiaries and implementers. This research fills this gap by qualitatively analyzing the sustainability issues of the matching of grant-financed farming enterprises in Zambia and adding to the discussion of aid effectiveness, agricultural development, and sustainable rural livelihoods.

III. METHODOLOGY

3.1 Research Design

The research design applied in the study was a qualitative constructivist research design, which enabled a deep study of the lived experiences, perceptions, and interpretations of government officers as well as smallholder farmers involved in the Matching Grant Facility. An abductive method was used to obtain a better insight into the experiences of participants and to formulate a subtle knowledge of programme implementation and outcomes.

3.2 Research Setting

The location of the study was Chipili a rural district in Luapula Province, Zambia. The district was chosen because it was actively involved in the matching grant programme and both smallholder farmers and government officers were involved in the programme. In this report, the actual identities of the participants have been anonymized in order to create confidentiality.



3.3 Sampling

Smallholder farmers and government officials who were directly involved in the Matching Grant Facility formed the study population. There were 19 Participants: 7 farmers, 4 provincial officers, and 8 district officers of Ministries of Agriculture, Livestock and Fisheries and Small and Medium Enterprise Development. The participants were selected through purposive sampling, considering their experience, exposure and direct involvement with the Matching Grant programme. This method was used to ensure that participants had the opportunity to give rich, relevant, and diverse views. Qualitative research principles, especially thematic saturation, was used to inform the sample size, where no new meaningful themes can be generated through further interviewing. The saturation occurred once 19 interviews were done because the same patterns about the financial, institutional, market, and administrative issues kept reappearing. To ensure that the institutional and program-level perspectives were captured, the study used the greater number of implementers, and farmers gave specific on-the-ground accounts.

3.4 Instrument and Data Collection

The data were gathered via semi-structured interview and focus group discussion. The guides to the interview and the focus group were constructed using the study aims and a literature review on the matching grant programmes. The pre-test was conducted on a small sample that was not part of the actual study to verify the clarity and validity of the instruments. The reliability was promoted through the adoption of protocols, prompts and procedures that were consistent throughout the interviews and focus groups.

The information was gathered within a six-week period (May to June 2025). The interviews with implementers were performed in the first place, then interviews with farmers and focus groups. This order enabled reflections of implementers to inform further investigation with farmers. The participants received information regarding the objectives of the study, signed a written consent form, and the interviews were held in a private, safe, and conducive environment. These steps assisted in the assurance of the richness and credibility of the gathered data.

3.5 Data Analysis

Data were analyzed using thematic analysis, which is a systematic and iterative approach. The first step was the repetitive reading of interview and focus group transcripts to familiarize with the data. In the preliminary coding, descriptive codes were assigned to meaningful parts of text based on major ideas and experiences shared by Participants. In the next step, codes were considered and categorized into larger groups using a similar method to axial coding and relationships between codes were determined. These groups were further narrowed down to broad themes that summarized the patterns that were repeated throughout the data. Themes were revisited and edited so as to guarantee internal soundness and very clear demarcation between the topics.

In order to increase analytical rigor, the emergent themes were continuously compared among the groups of the participants (farmers and implementers) to identify the points of similarity and distinctiveness in the views. Thematic analysis is an extensively popular method of revealing common patterns or themes in qualitative data. Formulated by Braun and Clarke (2022) this technique has been used in numerous academic fields in the quest to understand research topics in a better way.

3.6 Ethical Considerations

The University of Zambia Humanities and Social Research Ethics Committee (HSSREC) review number [REF NO. HSSREC-2024-NOV-017] granted ethical approval. Participants were requested to provide informed consent, and personal information identifiers were removed to ensure confidentiality.

3.7 Researcher's Reflexivity

All the researchers, but one, had some background in rural development work, including the work with smallholder farmers and programs in agriculture. This experience facilitated interpretation of the data since the team was in a position to know more about local farming methods, technical jargon, and program implementation issues. It also had a possibility of bias though, since researchers may have been influenced by their prior knowledge and experiences and stressed some of the challenges or interpreted the responses of the participants based on their assumptions about the Matching Grant Facility.

Some steps were implemented to reduce this risk. The research team maintained reflexive journals to record personal assumptions, reflections and possible biases following every interview and focus group. Throughout the data analysis process, team members would discuss their interpretations and critique the other member on their assumptions to ensure that the themes would be based on the actual responses of the participants and not on their own perceptions and ideas. Member checking involved sharing of initial findings with the participants to ensure that the experiences of the participants were accurately recorded. Moreover, the team made sure to take into account counter-intuitive or conflicting information, so that other possible explanations are discussed and noted. Such measures made the findings



more credible and unbiased and contributed to the fact that the conclusions were drawn not on the basis of the previous experiences or expectations of the researchers, but on empirical evidence.

IV. FINDINGS & DISCUSSION

4.1 Lack of Market Linkages and Unstable Markets

The study found that farmers faced major challenges due to poor market linkages and unstable markets. Participants from focus group discussions and key informant interviews reported limited access to market information, weak relationships with buyers, poor transport systems, and inadequate market infrastructure. These challenges made it difficult for farmers to sell their produce at good prices. Many farmers said they did not have reliable market information. This made it hard for them to decide when and where to sell their produce. Most farmers depended on rumours from the community. One participant said,

(PT 4) *"I just rely on community rumours and speculation about buyers. I don't have access to market information"* (09/05/2025).

Because of this, farmers often missed better market opportunities and received low prices.

Farmers also reported weak relationships with buyers. Poor connections with bean buyers forced many farmers to sell to middlemen, usually at lower prices. One farmer explained,

(PT 11) *"As farmers, we need to build strong relationships with bean buyers in order to access better markets"* (15/05/2025). Another participant added,

(PT 12) *"We don't have market connections with bean buyers. Most of the time, we sell to middlemen who come from Mansa"* (15/05/2025).

Transport and market infrastructure were also major problems. Poor road conditions and high transport costs made it difficult for farmers to take their produce to markets. One participant stated,

(PT 14) *"It is not easy to move the produce to the market because the roads are bad and transport costs are high"* (15/05/2025).

In addition, farmers reported that storage facilities at bulking centres were inadequate. The centres were mainly open slabs, which made it difficult to store beans for a long time. One participant noted,

(PT 6) *"We need affordable transport services and proper storage facilities to make it easy for us to sell our produce"* (10/05/2025).

The findings also showed that farmers struggled to find stable markets, especially after the grant period ended. Without support from group leaders or strong market networks, many farmers failed to secure reliable buyers. Some farmers said they took their produce to bulking centres, hoping leaders would find a market, but this did not happen. One farmer said,

(P2) *"I took my beans to the bulking centre so that the leaders could look for a market, but nothing happened"* (05/05/2025). A group leader also said,

(P1) *"We looked for a reliable market with a reasonable price, but there was nothing"* (05/05/2025).

Farmers further explained that unstable demand and price changes forced them to sell their produce at very low prices. This resulted in low profits and discouraged farmers from expanding their production. One participant said,

(P3). *"If we can secure a reliable market with a good price, I can even increase my cultivation area of beans"* (05/05/2025).

Previous studies support these findings and show that poor market linkages limit farmers' income and growth. Research also shows that government support in creating market linkages can improve income, employment, and asset ownership for farmers (Hossain et al., 2022; Maina et al., 2024). This suggests that improving market information, strengthening buyer–farmer relationships, and investing in transport and storage facilities can help smallholder farmers access better markets and improve their livelihoods.

4.1.1 Lack of Certified Seed

Findings from the key informant interview and focus group discussion revealed that some farmers had difficulties in securing certified bean seed hence they had reused the seed from the previous season. Reliable access to certified seeds critical for consistent yields was often non-existent, forcing farmers to rely on inferior or untested alternatives.

P5. *"There is no agro-dealer that sells beans seed in the district including the type of chemicals that were given under the matching grant program"* (07/05/2025).

Then seed shortage is not only seen as a technical issue but one that threatens the livelihoods of farming communities. Research by Muteti et al. (2022) highlights that farmers realizing some profits even from low yields plant certified seeds and allot significant land portions for beans. This means that access to certified seeds might turn farming enterprises supported by matching grants into resilient and economically sustainable ventures. Therefore, the



accessibility of certified seeds is very crucial for the resolution of these issues. With this certification, farmers will be on their way to attaining consistent yields and income, thereby immensely contributing toward the long-term viability and success of matching-grant-supported farming operations.

4.1.2 Poor Exit Plans

The research Participant from the key informant interview and focus group discussion revealed that the project wrapped up abruptly, with no transition strategy to sustain farmers operations without grant support.

P 7 "We were just requested to submit a final report; my understanding is that the project was supposed to end later but ended earlier than planned" (10/05/2025).

This abrupt termination of the project left farmers stranded without market for their produce. This deviation from the original timeline increases the likelihood that, maybe due to changing priorities or unanticipated problems, the intended schedule was not followed. Farmers who relied on ongoing support found themselves without the essential technical assistance needed to maintain their operations. Such a sudden termination could jeopardize the advancements achieved and damage the trust between the implementers and the community. A transition plan is essential for ensuring that the benefits of a project persist after formal support ceases. In the absence of this strategy, recipients may have a difficult time sustaining the improvements, which could result in declines in productivity and economic benefits. As emphasized by Ndombi et al. (2020), the sustainability of project outcomes is guaranteed by an exit strategy that allows for continued progress once the intervention has ended or external support has been withdrawn. Should an exit strategy not be included into the planning process, the program runs a great risk of being completed in a disorderly and unorganised manner as it shuts down.

4.1.3 Administrative and Process Challenges

In line with the main theme above, the findings from the key informant interview and focus group discussion revealed administrative and process challenges. Complicated and unwieldy application and disbursement processes delay access to funds and obstruct effective project implementation.

P16 "There was a delay in the disbursement of funds due to compliance requirements" (13/06/2025).

P18 "Farmers had difficulties in meeting the grant requirement and there is no bank in the district that slowed down the transaction processes" (19/06/2025).

Participants perceived administrative and process hurdles as a significant challenge to sustainability and failure of matching grant funded farming enterprises.

Research corroborates these observations by pointing out the detrimental effects of bureaucratic inefficiencies on rural funding systems. Kujala (2019) found that excessive bureaucracy within rural administration can lead to adverse outcomes, especially regarding EU-financed rural development initiatives. Likewise, Namaswa and Juma (2019) revealed that bureaucratic obstacles significantly affect fund disbursement in county governments in Kenya. They suggested policy revisions to mitigate these bureaucratic issues and speed up fund allocation. Their study emphasises how administrative procedures must be streamlined to ensure timely access to resources and enhance project execution. This includes not only making application forms simpler but also expediting money delivery.

4.1.4 Post-Grant Support Deficiencies

In line with the main theme above, the findings from the key informant interview and focus group discussion revealed post-grant deficiencies which gave birth to two subtheme lack of ongoing mentorship and follow-up support. The participants revealed that the lack of ongoing mentorship caused most of the farming enterprises to stagnate and cease operations.

P13, "Since the project ended, the farmer business schools which were established with the support of the grant are not active to provide mentorship" (15/05/2025).

The participants also revealed that the Lack of follow-up support after the grant period greatly contributed towards some farming enterprises to stagnate and cease operations.

P10. "The Extension officers or the district office has never visited me since the matching grant project ended" (15/05/2025).

The research findings highlight two critical post-grant deficiencies that have undermined the sustainability of farming enterprises: the absence of ongoing mentorship and the lack of follow-up support after the grant period. In parallel, previous research underscores the vital role that mentoring plays for entrepreneurs. For instance, research conducted by St-Jean and Tremblay (2020), on Mentoring for entrepreneurs: A boost or a crutch? Long-term effect of mentoring on self-efficacy found that mentoring can boost self-efficacy in opportunity recognition, especially for entrepreneurs with a low learning goal orientation. However, they caution that these benefits may be short-lived without sustained support. This corresponds with our discoveries, indicating that the short-lived nature of the mentoring impact noted in certain studies may be even more evident without structured, continuous support systems.



Inadequate Stakeholder Engagement

The results from the key informant interview indicated Insufficient Stakeholder Involvement. Participants revealed that the line ministry officials and local communities were *left out of the project's design phase*, only to be handed roles during implementation.

P18. "The line ministry officials and community are not involved in the design of the project but only in implementation" (19/06/2025).

The study results show that a major weakness of the matching grant project was the lack of adequate stakeholder engagement, as line ministry representatives and local communities were left out of the design stage and included only during the implementation phase. This method restricted the opportunity for significant involvement and ownership among those essential for the project's enduring success. This finding is backed by earlier studies. Adesida and Okunlola (2015), highlight the significance of promoting community engagement and participation in the design, planning, execution, and oversight of community projects to guarantee their sustainability. Their research indicates that when community members are involved from the beginning, projects are more prone to effectively meet local needs and maintain sustainability in the long run. Eidt et al. (2020) also emphasize that smallholder farmers frequently possess a constrained voice in agricultural innovation platforms, as powerful stakeholders usually influence the agenda to reflect their interests. This situation can lead to project designs that do not completely capture the requirements or context of all stakeholders. These results clearly show that increasing local input in the planning and decision-making cannot be avoided.

4.1.5 Weak Leadership and Intragroup Power Struggles

The key informant interviews and focus group discussions revealed weak leadership and intragroup power struggles as some of the major challenges facing farming enterprises. This challenge led to three sub-themes: poor leadership, infighting among members, dominance by some members, which all hampered collective ownership and proper management of a group.

Participants indicated that poor leadership has led to the collapse of certain farming enterprises particularly following the inability of the groups to find good markets. Leaders could not maintain members in line and this resulted in lack of a common direction and weakened group cohesion. According to one participant, *"our leaders could not join the group together once it could not find a market"* (P16) (19/06/2025). Moreover, the group leaders did not have the ability to negotiate better prices and deals with bean buyers which further undermined the performance of the groups.

There were also internal conflicts amongst the groups. Other farmers decided to sell their products individually rather than as one group, and this decreased the power of the group and mistrust among farmers. One of them described it as farmers opting to sell on a one-on-one basis rather than selling as a group and this undermines our bargaining power. *"Some farmers prefer selling individually instead of as a group, which weakens our bargaining power. This disagreement has created mistrust and division within the scheme"* (P4) (19/06/2025).

Another major problem was the dominance of a small section of the members in making the decisions. The participants stated that some members dominated the group resources and made decisions without consultations with other members. This created a sense of marginalization and discontentment among the common members. One Participant observed that some of them do all the decisions without involving the remainder of us. *"They take charge of the use and finances of the tractor that is purchased by the use of the same finances acquired in the matching grant, and they determine how the money is used, and the others feel marginalized"* (P13) (19/06/2025).

All in all, the results indicate that poor leadership and intra-group power conflicts have a substantial impact on the sustainability of farming businesses. Lack of leadership, intra-organizational conflict, and unequal power relations diminished the trust, cooperation, and collective action. These findings are supported by existing research, which states that intragroup power struggles and controlling power of powerful members may have negative effects on group results (Greer & Chu, 2020). Nevertheless, research indicates that shared decision-making may contribute to the minimization of conflicts and the establishment of balanced influence among groups. Likewise, a Tanzanian study on Participatory Forest Management revealed that when members were not adequately involved in the decision-making process and the systems of sharing benefits were not based on fairness, they became controlled by a few people in high positions, which led to dissatisfaction and poor management results (Magessa, 2020). These observations underscore the wider problem of ensuring that collective management and equitable governance in group farming enterprises are successfully attained.

4.1.6 Limited Access to Finance

The Participants also reported that lack of access to finances as another serious challenge post grant. They reported that it was difficult in accessing credit and other financial services to support their farming enterprises.

PT 17. "There is no microfinance institution in the district that can lend you money to expand your farming enterprise" (19/06/2025).



The Participants identified limited access to finance as a key obstacle following the closure of the matching grant program. Many Participants experienced challenges in securing credit and other financial services essential for maintaining and growing their farming operations. A participant (PT 17) specifically pointed out the lack of microfinance institutions in the district, making it nearly impossible to obtain funds for agricultural investments. This finding echoes previous research on rural finance, which regularly underscores the barriers that smallholder farmers encounter in accessing credit (Ullah et al., 2024). Research has demonstrated that financial exclusion in rural regions often stems from a mix of factors, such as the lack of financial institutions, strict loan conditions, and high-interest rates, which make borrowing unaffordable for small-scale farmers (Okrah Maku, 2024). The absence of such services hampers farmers' ability to expand their operations, adopt advanced technologies, or recover from financial setbacks.

V. CONCLUSION & RECOMMENDATION

5.1 Conclusion

This research paper discussed challenges that led to the failure of some agricultural businesses following the closure of the matching grant scheme in Chipili District in Zambia. The results indicate that the grants assisted farmers to start up and expand their business but many were unable to survive due to unstable markets, inability to procure certified seed, lack of access to finance, poor leadership in farmers groups, poor stakeholder involvement, bureaucracy and absence of strategies to sustain them after the project duration. These findings indicate that financial aid is not sufficient to sustain small agricultural enterprises. Institutional, market, and continuous training should also be supported.

The study is original, in that it presents comprehensive, qualitative evidence based on the observations of both farmers and government implementers of the numerous factors that influence the sustainability of matching grant-funded enterprises in rural Zambia. In contrast to the past studies which tend to consider short-term outcomes only, this study recognizes long-term obstacles to enterprise survival and the interaction between financial, institutional, social, and market-related challenges. It can also show the significance of post-grant assistance, competent management, and involvement of stakeholders as a way of supporting rural livelihoods. These findings provide useful suggestions to policymakers and implementers of programmes to build more effective matching grant interventions.

5.2 Recommendation

In order to enhance the success of matching grants, policymakers ought to ensure that programmes incorporate exit plans, enhanced access to the market, and provision of finance to small farmers. Programme implementers are supposed to make the administrative procedures simpler, release funds in time, and offer guidance and mentoring post-grant. Farmers ought to collaborate, enhance leadership among their groups, and improve relationships with buyers. Therefore, it is recommended that future studies should use longitudinal or quantitative approaches to assess the long-term sustainability of matching grant-supported enterprises in Zambia.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Relevance of big and thick social media data to businesses: A systematic review

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ABSTRACT

The rapid proliferation of social media has generated an immense volume of data, offering valuable insights for businesses across various sectors. This systematic review explores the roles and implications of big data, particularly social big data and thick data, in social media, highlighting their potential applications for enhancing business strategies and performance. The review synthesises findings from 148 scholarly articles, focusing on definitions, challenges, and opportunities associated with these data types. It identifies significant applications in areas such as business strategy, healthcare, hospitality, and telecommunications while also addressing gaps in under-represented fields. The analysis reveals a dominance of qualitative research approaches, with a growing trend toward mixed methods and quantitative studies post-2016. By combining big data's breadth with the qualitative richness of thick data, businesses can achieve a comprehensive understanding of consumer behaviours, preferences, and values. This integration facilitates improved decision-making, competitive advantage, and customer satisfaction. The study concludes with recommendations for future research, emphasising the need for more quantitative studies and the exploration of applications in emerging domains like smart cities and tourism.

Keywords: Big Data, Business Strategy, Data-Driven Decision-Making, Social Media Analytics, Thick Data

I. INTRODUCTION

Social media continues to gain ground daily as users grow from millions to billions. According to Statista (2023), as of January 2023, 4.76 billion or 59.4 per cent of the world's population were social media users. Since usage continues to grow and spread across the globe, it provides a rich data source for answering a wide range of research questions across various disciplines (Dwivedi et al., 2020). The widespread use of social media was also accompanied by the generation of large volumes of data, which can be recorded, stored, and gathered. The relevance of social media data has been identified as far-reaching. According to Zachlod et al. (2022), it can also be used to create numerous opportunities for businesses, such as a competitive advantage. The possibility of using social media to influence political results or public opinions is also an option. One major type of social media data used in this way is described as big data.

According to Cobanoglu et al. (2022), the term big data is mostly used to designate very large sets of data which are difficult to process using traditional methods. Big data refers to datasets that are large in volume, diverse in sources and types, and quickly created (Johansen & Euchner, 2013). In the views of Sagiroglu and Sinanc (2013), the term big data denotes enormous data sets that may be analyzed computationally to reveal relationships, patterns, and trends, yet, they also comprise diverse and complex structures posing challenges to storage, analysis, and visualization (Sagiroglu & Sinanc, 2013). Also, Big data can be described as massive data sets sifted by powerful analytical tools (Madsbjerg & Rasmussen, 2014). Evidently, the concept of “big data” has been given different interpretations by different scholars and as opined by Bnjelloun et al., (2015), in terms of analytics, big data serves for the analysis of data to enhance predictive capabilities and assists in decision-making for multiple sectors, including trading, agriculture and tourism. The use of big data for business owners has been identified as vital in assisting with the growth of businesses. According to Revfine (2020), for business operators, big data offers the prospect of taking well-versed decisions, having a better knowledge of consumers and competitors, as well as improving revenues and customer experience.

Other studies (Ang, 2019), Hadi et al., 2018) have also suggested that big data alone might not be enough for businesses, hence the need for ‘thick’ data. According to Carr (2020), thick data are expressed as qualitative data such



as observations, feelings and reactions that offer insight into consumers' daily emotional lives collected mostly through ethnographic research methods. Carr (2020) added that thick data are generally the opposite of big data. "Thick data is descriptively rich and intensively detailed, collected from or with research participants on issues relating to their values, visions, knowledge, life experiences, and opinions, typically obtained by observing or interacting with participants in their daily lives and through in-depth interview techniques" (Honga, et al., 2022:6). Also, working with big data has been identified as challenging. According to Kitchin (2014:2), "the challenge of analysing Big Data is coping with abundance, exhaustivity and variety, timeliness and dynamism, messiness and uncertainty, high relationality, and the fact that much of what is generated has no specific question in mind or is a by-product of another activity". Generating these kinds of data from social media has made it a lot more difficult to deal with. Generally referred to as Social Big Data (SBD), it is seen as any high-volume, high-velocity, high-variety and/or highly semantic data that is generated from technology-mediated social interactions and actions in the digital realm, and which can be collected and analyzed to model social interactions and behaviour (Olshannikova et al., 2017).

The concept and application of big data have spread to every sector of the economy and academia in the past decades. The variety of opportunities offered in this era of technological advancement and the numerous potential practical applications of big data are the primary reasons for the excitement surrounding it (Cobanoglue et al., 2022). Big data are typically derived from technologies that automatically generate large data sets, collected by various sensors and mobile devices- practices that are rarely analyzed on established epistemological or theoretical grounds (Kitchin, 2014). According to Cobanoglue et al. (2022), despite the security and privacy-related issues posed by big data and the challenges that can be encountered in its uses and applications, there exists a consensus among scholars that big data ultimately contributes to enhancing business strategies and firm performance.

Also, the characteristics of big data are described using the five V's (volume, velocity, variety, veracity, and value) to determine the role and influence of big data in social networks (Hadi et al., 2018). Volume implies a tremendous measure of information that can be created consistently (Gandomi & Haider, 2015). According to Kitchenin (2014), velocity refers to the rapid generation of data, also known as streaming data. The term "variety" refers to a wide range of data types, including text, images, videos, and semi-structured data. The truthfulness of the analyzed data and the accuracy of any information are referred to as veracity (Bello-Orgaz et al., 2016). Since all five of these attributes can be found on social networks, the most significant application of big data is in social media, also known as big social data or social big data (Abkenar et al., 2021). Big social data denotes large data volumes concerning individuals or that define their behaviour and technology-mediated social interactions in the digital realm (Olshannikova et al., 2017). The help of social media has, therefore, made available a lot of data that can be harnessed for use by businesses.

The relevance of big data to businesses cannot be overemphasized, but Ang (2019) also acknowledged the importance of thick data. He argued that organisations can significantly boost the value of big data by merging it with "thick" data. This is rich qualitative information about users, such as their values, goals, and consumption behaviour, attained by observing or interacting with them in their daily lives. Also, Olshannikova et al. (2017) added that the semantic richness and volume of social big data have made it a lot more relevant to individuals, businesses and organisations. Social big data is mainly used to generate insights from social media data and online social interactions of people for descriptive or predictive purposes to influence human decision-making in various application domains (Golbeck 2014; Golbeck et al., 2011 & Power et al., 2011)

There are some challenges in dealing with big social media data as far as analysis is concerned; hence, other studies suggested the use of thick data as well. Though these challenges will always be in existence, studies (Ang, 2019; Abkenar et al., 2021; Honga et al., 2022; Dwivedi et al., 2020; & Kitchin, 2014) that analyze social media data have increased in the past few years. Interestingly, most of these studies were not conducted in Ghana and neither were they done in Africa. The plethora of materials from different parts of the world has therefore necessitated a systematic review of how big data, especially social big data and thick data, can be useful to businesses. According to Zachlod et al. (2022), this approach is needed to evaluate the methods and quality of studies using social media data. To achieve this, the study will seek to explore the literature on the differences between big data, social big data and thick data. Also, the study will investigate how businesses make use of social media data and thick data and finally identify how the use of these categories of data can assist in the success of businesses.

The study further presents an extensive literature review that comprises the analysis of the definitions of concepts and themes with a focus spanning global perspectives and African and Ghanaian situations. This study contributes to the literature with an analysis of big data, social big data and thick data as concepts and their relevance to businesses. Articles were collected on Google Scholar using key terms like big data, social big data, thick data, social big data in business and other related keywords.



1.2 Research Objective

- (i) To determine the approaches that are used in conducting social media big and thick data research.
- (ii) To establish the areas of business researches in the area of big and thick data from social media.
- (iii) To determine the trend in business research on big data and thick data.

II. THEORETICAL REVIEW

This systematic literature review aims to critically assess and investigate the importance of big data (Social Big Data) and thick data in social media to businesses in Africa. This review contextualizes the study by offering insight into the known and unknown and highlighting the knowledge gap. Systematic reviews were originally intended for use in health sciences, but in recent years, they have gained popularity in social and consumer sciences for examining publications and written works on specific issues. Systematic reviews also aim to reduce bias by identifying, evaluating, and synthesizing relevant literature on a certain issue (Uman, 2011).

2.1 The Development of Social Media Marketing Under Big Data

Big data social media marketing may be viewed as an important branch of social media marketing study. As a result, research on the development of both should explore the distinctions between new and old social media marketing development and assess the features of big data and social media marketing based on a clear idea. It is important to recognize the present state of social media marketing in the context of huge and dense data and to conduct in-depth talks about its use and future development direction (Zhang, 2020).

2.2 The Concept Definition of Big Data and Social Media Marketing

There are now various definitions of big data, including the following. To begin, big data may be viewed as the geometry of huge data. In general, when data resources accumulate, the unit of measurement for big data frequently evolves toward Gartner for technical people involved in big data projects. Second, big data has been expanded to a modern-day phenomenon of data rushing. As a company's data accumulates over its operation and development, it becomes difficult to conduct organized statistics and analyses using conventional data technologies. Big data can become a collection of enterprise data acquisition, storage, searching, and sharing; third, big data can be used as modern network finance that focuses on data and a collection of the derived data analysis, data security, data searching, and data sharing, as well as other industrial chains (Zhou et al., 2014). In summary, it is possible to think that modernized big data is a national service path in the field of quantitative research, transforming the conventional random analysis approach into a concrete and comprehensive research method. Big data creation progresses from basic to complex and from single to diversified. Furthermore, big data transaction information contains data media, company data, and government data that are interconnected, open, public, and dynamic (Onete et al., 2020).

The notion of social media, initially proposed by Americans, is thought to be a collection of internet media. Initially, social media had a particular potential for personal creativity and distribution, with basic qualities like involvement, openness, communication, and social trends (Ni, 2021). As a result, social media often allows users to have a feeling of involvement and realism, as well as to participate in the community. The most significant aspect of the definition of social media in modern culture is "media," which includes radio, newspapers, and other communication instruments. Then comes the creation and definition of "social" and other mass network communication tools aimed at the entire society (Mumthas et al., 2022). From a marketing standpoint, integrating social media with marketing may assure marketing's steady development. In terms of transmission strategies, social media, as opposed to traditional marketing, tend to be more vertical in terms of consumers and information senders and enjoy higher user stickiness. Furthermore, social media marketing may make online interactions a reality, and it outperforms traditional marketing in terms of communication span. It is a more robust business strategy that focuses on capturing dynamic customer information. As a result, social media marketing is primarily a new marketing activity developed based on online media platforms that combine creative marketing, experiential marketing, and entertainment factors, as well as a new marketing model with a high degree of participation and expansion (Li & Yu, 2018).

2.3 Big Data and Thick Data

Big data has transformed how businesses and governments offer services (Yuen, 2019). Businesses can greatly increase the value of big data by combining it with "thick" data, which equates to rich qualitative information about users, such as their values, goals, and consumption behaviour, gleaned from observing or interacting with them in their daily lives via social media feeds (Yuen, 2019). Using big data in many capacities might be intimidating or have little use if the data is "thin," meaning it lacks significance for consumers or fails to capture the most important concerns (Hartmann et al., 2016).



Thick data may enrich both the collection and analysis of big data by providing insights into what people truly care about and how they consume services. Whereas large data is broad and thin, thick data is narrow and rich; combining the two produces a more comprehensive view of a situation (Groves et al., 2016). If big data represents the volume, velocity, and diversity of countable objects, thick data is information on the significance, meaning, and connections that humans attribute to services or technologies, as well as the process by which they consume them (Grover et al., 2020). Immersion in consumers' natural contexts, rather than laboratory-type settings, generates thick data. This idea of thick data is based on a well-established corpus of business knowledge and research methods.

Geertz (2000) defines data as "perceived constructions of other people's constructions of what they and their compatriots are up to." Creating dense data needs the simple act of observation, a key instrument of ethnography — a discipline of anthropology dedicated to the examination of a specific social or cultural setting through participant observation (Mannik & McGarry, 2017). Leading corporations have used ethnographic methodologies to encourage and optimize their operations. When computing technology took off in the 1980s, ethnographic techniques were already being used to investigate how people interacted with machines, according to an executive at IBM's Almaden Research Center. Engineers were assisted by ethnographers in bridging the gap between how machines were intended to be utilized and how they were used (Ang, 2019).

III. METHODOLOGY

A search strategy is a well-planned method of looking for relevant information and helps the researcher locate relevant literature to answer the research question (Ridley, 2014; Snyder, 2019). The purpose is to provide a broader picture of how large data and thick data are addressed in the literature, their importance, general trends and approaches widely employed in this respect. As a result, this study adds to the literature by analyzing big data and thick data as ideas and their tangible implementations for commercial goals. Articles from 2013 to 2020 were gathered using the keyword "relevance of big data and thick data in Social Media to business" on Google Scholar.

Even though big data and thick data have several commercial applications, it has been observed that publications about these ideas are increasingly prominent in the literature, often at the cost of their most direct uses in certain industries. Only papers dealing with commercial applications were considered, with no consideration given to scientific, computer, or cloud engineering publications. As a result, current gaps in the business literature on big data and thick data are addressed in this study, as is the progress made since 2013. Future research directions are also offered. One of the reasons 2013 was picked was because it was the year of big data and thick data tool innovation. Furthermore, in the literature on the ideas, the bulk of the publications connected to commercial applications were published after 2013, although there were fewer before this period. Because of the numerous domains of application of big data and thick data for businesses (e.g., business strategy, firm performance, networks and telecommunications, banking and finance, healthcare, hospitality) and the other domains entailed such as government, law, privacy concerns, and regulations, the search on Google Scholar was favoured over selecting specific databases because these fields of application present many articles in disparate journals.

After removing book chapters, book reviews, citations, and duplicate entries, a total of 235 articles were obtained at the end of the search. Then, 40 articles were eliminated because they were perspectives, opinions, editorial and lecture notes, Microsoft Word documents and PowerPoint presentations, or draft pieces. Following this procedure, 195 articles were retained and evaluated to ensure that the core concept of the articles was related to a commercial application of big data and thick data. Other research in the category, Concepts and Definitions, examined the definitions, characteristics, potential applications (in a broad sense), possibilities, and obstacles associated with big data and thick data. The content of such publications is unrelated to a specific commercial application of big data or thick data, but it does provide insights about the use and role of both ideas in business.

This review is an attempt to study the literature on the use of big and thick data from social media. In doing so, the researchers adopted the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines. This guideline was helpful because it was designed to help researchers transparently report about their review process (Page et al., 2021).

IV. FINDINGS & DISCUSSION

4.1 Response Rate

The bulk of papers obtained for this study (40%) were in the area of business strategy and company performance, followed by healthcare (11%), and law, privacy, and regulations (9%). Hospitality/network & telecommunications articles accounted for 8% of the data gathered, whereas smart cities articles accounted for 5% of the total number of articles analyzed. This inadequate representation of hospitality in the sample, for example, might be attributed to the hospitality industry's late adoption of big data and thick data analytics and social media techniques.



The publications accessible in the literature on networks and telecommunications were more useful to social media data science and technological infrastructures than to business itself. Banking and finance legislation accounted for 3% of the data, government accounted for 2%, and concepts and definitions accounted for 22%. It is worth noting that, while the categories of governance, definitions, and concepts may not sound business, the articles kept for these categories were connected to business and dealt with these elements as they apply to social media. Furthermore, all firms, including those in the tourist sector, must follow particular rules and regulations and are vulnerable to government control. The current study also revealed a rising trend in business research on big data and thick data from 2013 to 2020, even though articles dealing with the scientific aspects of big data and thick data, such as algorithms, infrastructures, and applications in general, remain prominent in the overall literature on social media data. Thus, in terms of business applications, a substantial number of publications dealt with business components. Nonetheless, the hospitality industry, as well as network and telecommunications, banking and finance, and smart cities, were discovered to be underrepresented in the sample.

4.1.1 Preferred Research Contexts

The study findings revealed that business performance, on the one hand, and applications in healthcare on the other, remained popular research areas, with 60 and 16 papers in this review, respectively. Other items in the sample included 32 articles that looked at the possible business uses of big data and thick data, but they were classed as concepts and definitions due to their broad approach and lack of focus on a specific business application.

Several research on business performance dealt with approaches to improve firm performance utilizing big data and thick data obtained through social media (Akter et al., 2016; Davenport & Dyché, 2013; Dubey et al., 2019; Gupta & George, 2016; Mikalef et al., 2020; Popovic et al., 2018; Wamba et al., 2017; Wielki, 2013), in addition to implementing strategic value (Grover et al., 2018; Line et al., 2020; Rajpurohit, 2013). Studies on the importance of big data and thick data in developing a firm's competitive edge (Barham, 2017; Kubina et al., 2015; Matthias et al., 2017; Mikalef et al., 2016; Upadhyay & Kumar, 2020; Yasmin et al., 2020), and research on supply chain analytics and management (Biswas & Sen, 2017; Wang et al., 2016; He et al., 2020; Nguyen et al., 2018), developed appealing social media research lines. To that, research on logistics (Zhong et al., 2015) might be included, as can studies on the problems and potential of big data and thick data in supply chain management (Kache & Seuring, 2017; Zhong et al., 2016). Likely limitations in applying big data and thick data in business were also investigated (Ghasemaghahi & Calic, 2020; Schroeder, 2016; Sen et al., 2016). Ylijoki and Porras (2016), for example, investigated and defined themes and rules for the use of big data in an organization, whereas Chen et al. (2017) gave a case study on how big data was utilized to remodel Lufthansa's business model. Korhonen (2014), on the other hand, examined the influence of big data on organizational design through social media reactions.

Shim et al. (2015) studied ways to secure a good return on a company's big data investment, whereas Côte-Real et al., (2017) analyzed the business value of big data and thick data in European enterprises. The importance of big data and thick data in organizational decision-making processes has also been studied (Elgendy & Elragal, 2016; Fu et al., 2020; Poletto et al., 2015), whereas Provost and Fawcett (2013) and Babu and Sastry (2014) focused on automated decision-making. A systematic review by Akter and Wamba (2016) was also included, as were papers about big data as an industry and market (Bughin, 2016; Dekimpe, 2020; Liu et al., 2014).

Healthcare has also been noted as an area with significant interest in the literature about the applicable use of big and thick data in social media healthcare. In the sample, 16 publications were relevant to the possible applications of big data in healthcare. Comprehending big data capabilities in healthcare (Chen et al., 2020; Wang et al., 2015) or comprehending the difficulties and perspectives of action for the use of big data in the healthcare business (Mathew & Pillai, 2015) was the focus of this topic's examinations. Furthermore, identifying and prioritizing essential elements for increasing big data adoption and utilization in healthcare was investigated (Kim & Park, 2017; Wang & Hajli, 2017). Similarly, Bates et al., (2014) investigated the use of big data to identify and manage high-risk and high-cost patients, while Wang et al., (2018b) developed an integrated big data analytics-enabled healthcare transformation model. Groves et al. (2016) investigated the intricacies of the big data revolution in healthcare, while Kupwade-Patil and Seshadri (2014) identified possible security and privacy vulnerabilities with big data technologies as they apply to the healthcare eco-system. The current literature has also examined the opportunities and policy implications of big data use in healthcare (Roski et al., 2014). The breadth of healthcare-related issues demonstrates the several fields in which big data may make a significant contribution to healthcare.

In furtherance, some research works looked at banking, especially consumer behaviour, through the lens of big data analytics (Sun et al., 2014), as well as risk analysis (Rahman & Iverson, 2015). financing-related articles investigated the problems and possibilities in financial stability monitoring (Flood et al., 2016) and how to increase the predictability of supply chain financing customers' business failure (Zhao et al., 2015). Other research has focused on the influence of big data on company operating departments such as marketing (Dekimpe, 2020; Fan et al., 2015), human resources (Angrave et al., 2016; Lindberg, 2020), and manufacturing (Li et al., 2015).

In the hospitality industry, Banic et al., (2013) investigated the use of big data and sentiment analysis for product evaluation, while Xiang et al., (2015) used big data analytics from social media to demonstrate the relationship between hotel guest experience and guest satisfaction. Frizzo-Barker et al., (2016) demonstrated how to use big data to create value for smart tourist destinations. Zheng et al., (2016) proposed a framework of big data-driven mobile network optimization in network and telecommunications; Mahrt and Scharkow (2013), investigated the value of big data in social media research; and Liu et al., (2016) provided a social network analysis using big data and thick data. Some research investigated the uses and roles of big data in smart cities (Al Nuaimi et al., 2015; Hashem et al., 2016; Kumar and Prakash, 2014; Wu et al., 2018). Vilajosana et al. (2013) investigated the reasons why businesses in smart cities face challenges, whereas Morioka, et al. (2015) evaluated a city management platform based on big data from people and traffic flows.

Government-related articles assessed the government's ability to implement big data and thick data applications related to the business sector (Kim et al., 2014), as well as transferring business intelligence and big data analysis from corporations to governments as a hybrid leading indicator (Bodislav, 2015). Chatfield et al. (2015) investigated organizational capability difficulties in reforming government through the use of big data and thick data in this respect. Studies dealing with privacy issues as related to big data and thick data were also present in the literature related to social media to business (Crawford & Schultz, 2014; Custers & Uršič, 2016; Kamakshi, 2014; Kshetri, 2014; Perera et al., 2015; Wachter & Mittelstadt, 2019), studies, as it is also the case for ethics (Allen, 2016; Nunan & Di Domenico, 2013).

4.1.2 Conceptual Developments

Scholars from a variety of fields are becoming increasingly interested in big data and thick data. Frizzo-Barker et al., (2016) conducted a systematic review to examine the emergence of big data in business study and how business academics understand the implications of this developing phenomenon. According to some researchers, big data and thick data in business may be viewed as a service, with three components: data infrastructure-as-a-service, data platform-as-a-service, and data analytics software-as-a-service (Zheng et al., 2013). Big data and thick data ideas in business have also been assessed about the relevant interdisciplinary aspects of social media to business (Berente et al, 2019; Fu et al., 2020; Geczy, 2014).

Casado and Younas (2015), for example, gave insight into the primary processing paradigms in connection to big data 3V's (variety, volume, and velocity). Big data in business has also been conceptualized based on its challenges (Acharjya & Ahmed, 2016; Samuel et al., 2015; Toshniwal et al., 2015; Zhou et al., 2014), data-intensive applications, challenges, techniques, and technologies (Chen & Zhang, 2014; Chen et al., 2020). The sample includes representatives from the field of large data management (Rossi & Hirma, 2015; Russom, 2013). Other scholars provided an account of how recent big data and thick data project initiatives have been successful in terms of delivering business value (Chang et al., 2020; Rahman & Aldhaban, 2015). Gao et al., (2015) provided a process view on critical success factors for big data analytics projects. Saggi and Jain (2018), for example, focused on the contribution of big and thick data analytics to value creation, whereas Maglio and Lim (2016) discussed innovation and big and thick data in smart service systems such as smart customization and prevention, smart operations management, smart coaching, and smart adaptation and risk management. The problems and uses of social media analytics were investigated by Verma et al., (2016). Markus and Topi (2015) assessed the consequences of large and thick data analytics for science, society, and business in general terms, whereas Gupta (2014) defined the methods of big and thick data analytics with an emphasis on data mining.

4.1.3 Review of Methods Used

A total of 151 articles were reviewed for methods and this is presented in Table 1.

Table 1

Methods Used in the Business Literature on Big Data and Thick Data

Methods Used	Number of Articles	Percentage
Qualitative	108	72
Quantitative	11	7
Mixed Method/Triangulation	32	21
TOTAL	151	100

A look at the approaches utilized for investigating big data and thick data business applications reveals a preference for qualitative methods, which account for 72% of the sample. Table 1 shows that research that employed quantitative or mixed approaches accounted for 7% and 21% of the total number of articles collected, respectively. It is worth emphasizing that literature reviews were defined as qualitative techniques for the sake of this study, whereas



systematic literature reviews with measurable samples were designated as mixed methods studies. The findings above indicate that the literature on large data and thick data lacks quantitative investigations, which can be attributed to the relatively recent time in which scholars began to expand their interest in thick data. This argument is backed by the fact that the samples utilized in this study indicated that the majority of quantitative studies on big data applications in business were completed after 2016. In reality, before this year, only two purely quantitative and three mixed studies were accessible from the sample; however, beginning in 2016, there are nine entirely quantitative and sixteen mixed methods studies. These findings also imply that more quantitative studies are on the way, as academics will be able to depend on more examples and applications of big data and thick data in social media to businesses to provide new findings, conclusions, and suggestions.

Notable works in mixed methods studies include: (Davenport & Dyché, 2013; Gillespie, 2020; Orenga-Roglá & Chalmeta, 2016; Popovic et al., 2018; Wang et al., 2018a; Wang et al., 2018b; Zheng et al., 2016), content analysis (Lee et al., 2020; (Davenport & Dyché, 2013; Gillespie, 2020; Orenga-Roglá & Chalmeta, 2016; Popovic et al., 2018; Wang et al., 2018a; Wang et al., 2018b; Zheng et al., 2016), content analysis (Lee et al., 2020; Line et al., 2020; Wang & Hajli, 2017; Ylijoki & Porras, 2016), interviews (Chen et al., 2017; Fu et al., 2020; Gunasekaran et al., 2018; Weng & Lin, 2014). Regarding quantitative methods, researchers mainly made use of surveys (Wang & Wang, 2016; Mikalef et al., 2020; Russom, 2013; Wamba et al., 2017) for the data collection.

Judging from the table above, it becomes clear that knowledge so far generated in the field of data has taken the form of thick data, with most researchers interested in the qualitative aspect of analysing social media data. By implication, it suggests that research findings could be mostly skewed towards qualitative kinds of analyses, robbing scholarship of the rich inputs of quantitative analysis of social media data. Again, the implications of such a trend could mean that social media analysis using the qualitative approach could stale, leading to a substantial shift or departure from qualitative analysis, which would help to reveal the rich inputs of quantitative studies.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusions

Social Media has taken over the digital space in the millennial era, and, as a result, businesses that realize this fact can make informed business decisions. Therefore, using big data and thick data in social media marketing works well for businesses. Big data, thick data, and their applications and importance in business have acquired appeal in academia in recent years, owing to a growing interest among researchers. This study's concept is a thorough assessment of big data and thick data in social media for businesses from 2013 to 2020. The findings revealed a preference for qualitative approaches, with an overall declining trend beginning in 2016, the year in which the number of quantitative studies began to rise. It is, however, worth noting that the majority of the results were centred on big data as opposed to thick data and or a combination of the two. Perhaps, thick data is still catching on and may be more involved in future research works. Nonetheless, research indicated that the literature on large data and thick data contains more exploratory studies than decisive ones, with few relying on empirical techniques. The majority of the research focused on big data applications for improving company performance, including subtopics such as competitive advantage, strategy, and decision-making.

5.2 Recommendations

From the conclusions above, more quantitative research will be required to build up the literature on this issue in sectors like hospitality, network and telecommunications, where the usage of big data is rising. Healthcare, on the other hand, is a discipline with a rising body of literature due to the wide range of topics that may be researched within the sector. Future studies might focus on large data and thick data applications in networks, telecommunications, and hospitality.

Based on the issues above, the researchers propose a conceptual framework that could be used to investigate the use of big and thick data to advance corporate businesses. Specifically, the researchers identified a gap in the literature in the area of how big data can reveal preferences of customers regarding the make of a particular product or the nature of a service. In that regard, the authors propose three theories – the Actor-Network, Machine Learning, and Media Multiplexity theories – to form a conceptual framework that would guide research to fill the suggested lacuna.

The Actor-Network theory, developed in the 1980s by sociologists Bruno Latour, Michel Callon, and John Law, posits that both human and non-human entities, referred to as “actants,” play crucial roles in the formation of social networks and the outcomes that emerge from them. Machine Learning theory is a branch of artificial Intelligence and theoretical computer science that provides the mathematical framework for understanding how algorithms can learn from data and generalize to new, unseen scenarios. Media Multiplexity theory by Caroline Haythornthwaite examines the relationship between communication channels and interpersonal bonds, focusing on the strength of relational ties.



In this conceptual framework, actor-network theory guides the production of data in the sense that, through the activities of individuals who use social media technologies daily, big and thick data are created on giant social media platforms. These data are then accessed by companies that are also influenced by technology, and as Machine Learning suggests, these data created can be exhumed, cleaned and made sense of through algorithmic inputs. Then, when this data is made sense of, according to Media Multiplexity theory, the communication and interpersonal bonds that is created between technology and individuals reveal personal information that help to fashion products and services to meet the expectations of regular and future customers whose preferences have been captured through the use of big and thick data.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Governing for sustainability: A contextual framework linking governance, autonomy, accountability and financial sustainability in Zambia's public higher education system

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ABSTRACT

Public higher education systems across Africa have increasingly adopted privatisation-related reforms to improve financial sustainability, efficiency and institutional performance. However, in Zambia, privatisation implementation remains fragmented and contested within a highly regulated governance environment. This study examines how governance structures, accountability mechanisms, institutional autonomy and financial sustainability interact within Zambia's public higher education system. The study aimed to examine how governance structures influence institutional management, analyse how accountability requirements shape financial decision-making, explore how autonomy is negotiated within statutory and ministerial controls and develop a contextually grounded framework that integrates governance, autonomy, accountability and sustainability. This study adopted a qualitative descriptive design grounded in an interpretivist paradigm. Between 8th February 2024 and 30th January 2025, data was collected from three public universities in Zambia: The University of Zambia, Copperbelt University and Mulungushi University. Eleven participants, comprising council members, senior administrators, the finance office department, the department of student affairs and government officials, were purposively selected. Semi-structured interviews were complemented by documentary analysis of the Higher Education Act (2013), Public Financial Management Act (2018), institutional statutes, financial reports and audit documents. Data were analysed using Manual Reflexive Thematic Analysis. The findings show that Zambia's public universities operate under restricted autonomy, characterised by extensive ministerial influence over financial decisions, senior appointments and resource allocation. While institutions attempt to diversify income through tuition, short courses, partnerships and ventures, government grants remain the dominant source of funding. Financial records indicate persistent budget deficits, delayed government disbursements and constrained recruitment processes. Regulatory density, policy fragmentation and overlapping statutory requirements limit institutional discretion and slow strategic decision-making. Although internal governance mechanisms promote accountability, they frequently reinforce compliance rather than innovation. Based on these findings, the study developed the Regulated Autonomy and Transformative University Sustainability (RATUS) Framework. This contextually grounded model explains how the interaction between regulation, autonomy, accountability and sustainability can create a balanced pathway for improving institutional performance. The study recommends legislative clarification of decision authority, coordinated policy alignment across regulatory bodies, strengthened institutional financial capacity and the adoption of integrated governance and planning models to enhance long-term sustainability.

Keywords: Accountability, Autonomy, Financial Sustainability, Governance, Public Universities, Zambia

I. INTRODUCTION

Globally, higher education systems are under increasing pressure to improve performance, enhance efficiency and respond to financial constraints. Across many countries, these pressures have produced reforms influenced by New Public Management (NPM), market-oriented governance and cost-sharing arrangements (Hood, 1991; Pollitt & Bouckaert, 2017). Expanding student enrolments alongside declining public funding have accelerated these reforms, compelling universities to adopt managerial practices traditionally associated with the private sector.

In Africa, similar patterns have emerged. Countries such as Kenya, Ghana, South Africa and Uganda have introduced reforms that encourage income diversification, strengthen governance structures and increase institutional responsibility for resource management (Teferra, 2019; Teferra & Altbach, 2004; Saint et al., 2003). These continental reform dynamics are also evident in Zambia, though shaped by important contextual distinctions. Public universities established in the 1990s were conceived as instruments of national development and were largely state-funded. Despite subsequent reforms promoting cost-sharing, income generation and institutional expansion, these universities remain heavily dependent on government funding and supervision (Masaiti & Simuyaba, 2018).



Although universities are formally positioned as autonomous entities, the Higher Education Act (2013) subjects major decisions, including senior appointments, financial commitments and fee adjustments, to ministerial approval. This creates a governance arrangement characterised by formal autonomy but substantive state control. De Boer et al. (2007) conceptualise this configuration as “regulated autonomy,” in which institutions are granted decision-making authority while remaining embedded in multi-level accountability and control systems. Similarly, Cloete et al (2015) observe that African universities operate under contradictory pressures: they are expected to expand knowledge production and contribute to development while functioning within constrained governance and funding environments.

In Zambia, this tension is reinforced by fiscal pressures. The World Bank (2021) Public Expenditure Review highlights structural funding constraints, delayed disbursements and broader inefficiencies across human development sectors, conditions that indirectly affect university sustainability. While institutions are encouraged to pursue innovation and revenue diversification, regulatory controls continue to limit their discretionary capacity (Woldegiorgis & Doeveenspeck, 2013; Teferra & Altbach, 2004). University councils may lead institutional processes, but final authority over key strategic decisions remains with the state (Government of Zambia, 2013).

These intersecting dynamics, fiscal constraint, regulated autonomy and reform-driven expectations reveal a governance environment that is complex and internally contradictory. Although multiple reforms have been introduced, public universities continue to experience financial deficits, delayed funding, recruitment constraints and uneven implementation of income-generating initiatives. Understanding these challenges requires an integrated analysis that connects governance structures, institutional autonomy, accountability mechanisms and financial sustainability. In this context, this study develops the Regulated Autonomy for Transformative University Sustainability (RATUS) Framework. This contextually grounded model explains how these relational dynamics shape institutional performance in Zambia’s public universities.

1.1 Statement of the Problem

Although the Zambian education system has introduced several reforms aimed at strengthening the governance of public universities, these institutions continue to face financial instability, recruitment challenges and constrained autonomy. The Higher Education Act (2013) establishes autonomous university councils; however, it subjects key decisions, including fee adjustments, senior appointments and major financial commitments, to ministerial approval. This arrangement has produced a governance environment characterised by partial autonomy, regulatory fragmentation and restricted institutional discretion.

Within such contexts, cost-sharing reforms become significant. Johnstone (2004) explains that cost-sharing policies shift part of the financial burden of higher education from the state to students and families, often as a response to fiscal pressures. While such reforms can generate additional revenue for institutions, they also introduce political sensitivities and equity concerns, particularly in systems where public funding remains limited.

Studies focusing on Zambia and the broader African context have examined cost-sharing, income generation and governance reforms (Cloete et al., 2015). However, these analyses do not fully integrate governance structures, autonomy constraints, accountability mechanisms and financial sustainability into a unified explanatory framework. There remains a need for a model that explains how these elements function relationally within Zambia’s policy environment. This study addresses that gap by developing the Regulated Autonomy for Transformative University Sustainability (RATUS) Framework. This contextually grounded model clarifies how governance, autonomy, accountability and sustainability interact to shape institutional performance.

1.2 Research Objectives

- i. To examine how governance structures influence institutional management in public universities.
- ii. To analyse how accountability requirements shape financial decisions.
- iii. To explore how autonomy is negotiated in the presence of statutory and ministerial controls.
- iv. To assess how these factors collectively influence financial sustainability.
- v. To develop a framework that integrates governance, autonomy, accountability and sustainability.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 New Public Management (NPM)

New Public Management provides a useful perspective for understanding contemporary reforms in higher education governance. At its core, NPM promotes efficiency, accountability, performance measurement and greater decentralisation in decision-making. It also encourages public institutions to adopt selected management practices associated with the private sector. In university environments, these ideas have influenced changes such as cost-sharing, performance-based contracts and efforts to diversify revenue sources beyond government funding (Merriam & Tisdell,



2016). In this study, NPM helps explain the growing expectation that universities should operate in a more financially disciplined and results-oriented manner while still fulfilling their public mandate.

2.1.2 Sustainability Theory

Sustainability theory emerged from broader discussion on sustainable development in the late twentieth century, particularly following the Brundtland Commission Report (World Commission on Environment and Development, 1987), which defined sustainability as meeting present needs without compromising the ability of future generations to meet their own needs. In the context of higher education, the theory was further developed by scholars such as Jamil Salmi (2009) and Michael Shattock (2010), who applied sustainability principles specifically to university governance and financing.

Salmi (2009) emphasised that long-term institutional success depends on diversified and stable funding sources, effective governance and strategic planning capacity. Similarly, Shattock (2010) argued that sustainable universities require sound financial management, institutional autonomy and adaptable leadership structures that can respond to changing economic and policy environments. These scholars advanced sustainability thinking within higher education by linking financial stability, governance flexibility and long-term institutional viability.

This position is reinforced by Shattock (2013), who links institutional sustainability to adaptive governance structures and strategic financial management within complex regulatory environments.

Sustainability theory therefore, focuses on the capacity of institutions to operate effectively over time while adjusting to shifting financial, political and policy conditions. It stresses the importance of stable income streams, responsible resource use and governance systems that are flexible enough to respond to external pressures. When these elements are combined, universities are better positioned to maintain continuity, plan strategically and support future development.

This theory is particularly relevant to the present study because it provides a framework for assessing whether current governance arrangements in Zambia enable long-term institutional viability or instead, constrain financial stability and sustainable growth.

2.2 Empirical Review

2.2.1 Governance and Autonomy in African Higher Education

Cross Africa, many higher education reforms have aimed to give universities greater autonomy to manage their own affairs while making sure they remain accountable to the state. In countries such as Ghana, Kenya and Nigeria, universities are formally granted autonomy through their councils and senior management structures (Teferra & Altbach, 2004; Saint, et al 2003). On paper, this suggests that institutions have the authority to govern themselves.

However, research shows that governments continue to play an important role in areas such as approving budgets, appointing senior leaders and guiding policy direction (De Boer et al., 2007; Christensen & Lægheid, 2011; Marginson, 2011). This means that although universities are described as independent, they still operate under close government supervision.

This continued state involvement is closely linked to funding. Because public universities depend heavily on government support, they must comply with strict accountability rules set by ministries and other regulatory bodies (Cloete et al., 2015; Teferra & Altbach, 2004). These rules are designed to protect public resources, but they also limit the extent to which universities can independently make financial decisions, such as reallocating budgets or adjusting fees. As a result, autonomy in African higher education is not complete freedom; rather, it is negotiated within juridical and political boundaries. These governance arrangements also affect financial sustainability, as institutions cannot easily launch new income strategies or implement major reforms without government approval. This consistent pattern of formal autonomy, combined with ongoing state regulation, points to the need for a framework that clearly explains how governance, accountability, autonomy and sustainability interact inside regulated public university systems.

2.2.2 Accountability and Financial Regulation

Public universities operate within environments that are regulated and designed to promote responsible financial management. In Zambia, instruments such as the Public Financial Management Act (2018) and the Public Procurement Act (2020) establish clear expectations regarding budgeting, auditing and procurement processes. These frameworks play an important role in strengthening transparency and reinforcing public trust (Bovens, 2007).

Yet regulation can present unintended consequences. When compliance requirements become overly procedural, institutional responsiveness may be weakened (Materu, 2007; Teferra, 2017; Pollitt & Bouckaert, 2017; Christensen & Lægheid, 2011). Caution that regulatory frameworks can become counterproductive when overly restrictive and allow little room for institutions to exercise their own judgment. In such situations, universities may struggle to be innovative and often rely heavily on central government approval for important strategic decisions. The



issue is therefore not regulation, but whether it provides universities with enough operational freedom to develop and sustain viable financial strategies.

2.2.3 Privatisation, Market Orientation and Income Diversification

Several African studies show that privatisation-related reforms often emerge indirectly through income generation, postgraduate programmes, fee-paying enrolments and strategic partnerships (Teferra, 2019; Johnstone, 2004; Teferra & Altbach, 2004). Despite these efforts, many institutions struggle to turn entrepreneurial initiatives into stable, predictable revenue streams. The success of such initiatives is frequently constrained by limited commercial expertise, weak feasibility planning and restrictive regulatory environments (Materu, 2007).

Zambia reflects similar patterns. Public universities have invested in income-generating activities such as agricultural projects, guest houses, consultancy services and short professional courses; however, sustaining consistent financial returns remains difficult. While these initiatives demonstrate awareness of the need for revenue diversification, their impact has generally been modest due to their small scale and uneven implementation (Saint et al., 2003). Masaiti and Simuyaba (2018) further document the financing challenges facing Zambia's public universities, highlighting continued dependence on government grants, delayed funding and limited diversification capacity. They argue that although income-generating initiatives exist, structural funding constraints persist and continue to undermine long-term financial sustainability.

These conditions raise important questions about whether existing governance arrangements sufficiently support entrepreneurial activity capable of strengthening institutional resilience and long-term financial stability.

III. METHODOLOGY

3.1 Research Design

This study adopted a qualitative descriptive design grounded in interpretivism to explore how governance, autonomy and financial sustainability are understood and practised within Zambia's public universities. An interpretivist approach permitted examination of the meanings institutional actors attach to their experiences in a regulated higher education environment (Creswell & Poth, 2018; Lincoln & Guba, 1985).

The three universities were the University of Zambia, the Copperbelt University and Mulungushi University, which were purposively selected to provide contrasting institutional contexts based on differences in governance structures, historical development and funding arrangements. The study population comprised senior decision-makers involved in governance and financial management, including council members, senior administrators, student affairs representatives and government officials from the Ministry of Education and the Higher Education Authority. Participants were selected using criterion-based selection and expert judgment to ensure direct experience in institutional leadership. Eleven participants were interviewed, and data collection concluded at saturation, consistent with established qualitative research guidance (Guest, Bunce, & Johnson, 2006).

Data were collected through semi-structured interviews and a review of key documents, including the Higher Education Act (2013), the Public Financial Management Act (2018), the Public Procurement Act (2020), as well as institutional statutes, strategic plans, audit reports and financial statements. Interviews followed a flexible guide that allowed participants to elaborate upon governance arrangements, accountability practices, autonomy, financial decision-making and resource constraints. Documentary evidence was used to corroborate and contextualise interview data.

Data analysis followed thematic procedures informed by Interpretative Phenomenological Analysis (IPA), involving repeated reading of transcripts, inductive coding, clustering of related ideas and development of themes (Smith, et al 2009). The analysis incorporated constant comparison to enhance analytical coherence and depth. Where relevant, thematic analysis procedures were aligned with established methodological guidance (Braun & Clarke, 2006). The participant profile reflected proportional representation across institutional leadership, financial governance, academic management and state control.

The study is positioned within a constructivist–interpretivist paradigm, which assumes that reality is socially constructed and that meaning emerges from lived experience within specific institutional contexts (Lincoln & Guba, 1985). Consistent with this position, an interpretative design informed by IPA was adopted to examine how stakeholders experience and interpret governance reform and financial sustainability in Zambia's public universities (Smith et al., 2009). These issues are shaped by negotiation, regulation and institutional practice rather than purely technical or financial considerations.

A quantitative design would have prioritised measurement over meaning and potentially overlooked contextual influences on decision-making (Maxwell, 2013). The qualitative interpretative approach therefore enabled in-depth exploration of how autonomy, regulation and sustainability are enacted in practice, while supporting the development of the RATUS framework through ongoing engagement with participant narratives. This alignment between the



paradigm and the design ensured coherence among the study's philosophical foundations, research aims and analytical outcomes.

3.2 Study Area

The study was conducted in three public universities in Zambia which are the University of Zambia, the Copperbelt University and Mulungushi University. These institutions were selected because they are the oldest and play a central role in the national higher education system and are directly affected by governance and financial reforms.

3.3 Target Population

The target population included senior university leaders and policy actors involved in governance and financial decision-making.

3.4 Sampling Procedure and Sample Size

Criterion-based purposive sampling was used to select participants who met specific requirements relevant to the study. Participants were chosen based on their direct involvement in university governance, financial management and higher education policy. A total of eleven participants were interviewed. Data saturation was reached when similar themes began to repeat across interviews.

To ensure confidentiality and compliance with scholarly ethical standards, participants are identified using anonymised codes (CA1-UB3). Each code corresponds to a participant's institutional role and interview date. Direct quotations are presented verbatim and enclosed in quotation marks.

3.5 Data Collection Instruments and Procedure

Data were collected through semi-structured interviews, document analysis and non-participant observation. These methods helped capture lived experiences while also provided policy and institutional context.

3.6 Data Analysis

Data were analysed using Manual Reflexive Thematic Analysis. Themes were developed inductively from the data, leading to the development of the RATUS Framework.

The researcher remained reflexively aware of the positionality within Zambia's higher education context. To minimise interpretive bias, repeatedly reviewed the transcripts, compared codes across interviews and used documentary evidence to corroborate participants' accounts.

3.7 Trustworthiness

Trustworthiness was ensured through triangulation of interviews and documentary evidence, systematic coding and verification of themes across participants. Credibility was strengthened through prolonged engagement with the data, while dependability was enhanced through systematic documentation of analytic procedures.

Table 1

Profile of Study Participants by Institution, Gender and Key Responsibilities

Category	Institution	Male	Female	Total	Key Responsibilities
CA1	CBU	1	0	1	Strategic leadership, policy advocacy, institutional vision
MC2	Mulungushi	1	0	1	Governance, administration, regulatory compliance
CA2	CBU	1	0	1	Governance, administration, regulatory compliance
UB4	UNZA	1	0	1	Academic leadership, resource allocation, faculty control
CA4	CBU	1	0	1	Academic leadership, resource allocation, faculty control
MC4	Mulungushi	1	0	1	Academic leadership, resource allocation, faculty control
UB3	UNZA	1	0	1	Budgeting, financial management, audits, revenue diversification
CA3	CBU	0	1	1	Budgeting, financial management, audits, revenue diversification
MC3	Mulungushi	1	0	1	Budgeting, financial management, audits, revenue diversification
MOED1	Directorate of Education	0	1	1	Policy development, oversight of university funding, regulation
HEAD1	HEA	1	0	1	Policy development, oversight of university funding, regulation
Total		9	2	11	

IV. FINDINGS & DISCUSSION

4.1 Findings

Direct quotations are presented verbatim to preserve participant voice, while interpretations reflect patterns identified through thematic analysis. Participant codes (CA1–UB3) indicate anonymised participants across institutional leadership and policy roles.

The findings are drawn from interviews with senior university leaders and government officials, complemented by an extensive review of policy documents, statutes, financial reports and audit records. Through thematic analysis, fifteen themes emerged and were grouped into three analytical clusters. The presentation below integrates Themes 1-15 to provide a coherent account of how governance, accountability, autonomy and financial pressures shape institutional actions in Zambia's public universities.

Cluster 1: Views and Selective Use of Privatisation (Themes 1–5)

Theme 1: Understanding Privatisation in Public Higher Education: Participants consistently indicated that privatisation is not formally adopted as national policy but appears selectively in practice. However, elements of it can still be seen in certain practices, such as income-generating activities and partnerships. Many administrators stressed that universities remain public institutions, guided by statutes that emphasise the state's responsibility. Documentary evidence supported this view, showing that major legislation, including the Higher Education Act, does not mandate privatisation. This has created a situation in which universities cautiously adopt revenue-enhancing activities while continuing to operate under strong ministerial authority.

Theme 2: A Careful and Selective Approach to Market-Oriented Practices: The participants explained that income-generating initiatives were carried out carefully and only within the boundaries set by national law. The universities introduced ventures that can be added to the revenue-generating activities, such as consultancy, short courses and postgraduate programmes, but still seek ministerial approval before the programmes are implemented. Although policy documents encourage institutions to diversify their income streams, they also emphasise that higher education should remain a public good. This dual direction created a cautious environment in which institutions pursued new initiatives while remaining mindful of regulatory boundaries.

Theme 3: Managing Finances Strategically to Maintain Stability: Financial management was seen as a key part of how universities operate. Participants highlighted the importance of careful budgeting, close monitoring of spending and adherence to legal reporting requirements to keep institutions stable. Although these controls safeguarded accountability, they often slowed financial decision-making. Several administrators said that even simple activities required lengthy approval processes, reducing the university's flexibility. Institutional financial reports confirmed reliance on annual budgets shaped by ministry guidelines, with little room for independent financial strategy. Universities tried to improve internal operations, but their efforts were limited because they lacked full independence.

Theme 4: Legal Structures and Limited Independence: The study found that governance structures are strongly based on national laws. Although university councils are officially responsible for running the institutions, they still need ministry approval for major decisions. Participants explained that councils manage everyday operations, but key matters such as appointing senior staff, adjusting fees and committing to large financial expenses must first be approved by the government. Analysis of institutional statutes revealed close alignment with national legislation, with limited space for context-specific governance approaches. This arrangement created stability but also delayed important actions.

Theme 5: Structured Governance and Partial Decentralisation in Recruitment: Recruitment processes revealed both internal participation and external control. The universities had the mandate to take care of matters that required human resources and the senior positions were left to the government to approve. Many of the people interviewed said that these long approval processes made it hard to attract and keep highly qualified staff. Salaries were also standardised across public institutions, which meant universities had little flexibility to offer better pay to stand out. Although the university councils had the mandate to hire, internal documents showed that the universities still needed the government to make the final decisions.

Theme 6: Limited Strategic Use of Recruitment and Human Resource Sustainability: This theme shows that recruitment in Zambia's public universities is mainly treated as a routine administrative process focused on rules and approvals rather than as a strategic approach to building skills, strengthening academic programmes or supporting long-term institutional goals. Hiring depends on available funding, ministerial approval and wage limits rather than long-term academic or institutional needs. As one administrator explained, "Recruitment is not something we plan strategically. You wait for authority" (P6, CA2, 2nd October 2024 at 09:28hrs). This has led to long-standing vacancies, especially in specialised positions, which increase workloads, lower staff morale and weaken teaching and research. CA1 noted that "Some positions stay vacant for two or three years" (P4, CA1, 3rd October 2024 at 8:52 hrs)." Audit reports referring to "frozen positions" confirm that recruitment is treated mainly as cost control, limiting institutional capacity and long-term sustainability.



Cluster 2: Institutional Leadership, Financial Constraints and Accountability (Themes 7-10)

Theme 7: Universities' continuous dependence on Government Funding Limited Diversification

Universities have the responsibility to raise funding to remain sustainable. Still, all institutions depend on the government for funding, which covers part of their operating costs. Participants explained that tuition fees were the main additional source of income, while other income-generating activities brought in relatively little. Projects such as agricultural ventures, rental properties and consultancy services often faced planning difficulties and strict approval requirements. Although policy documents encouraged universities to diversify their income, they did not provide clear guidance on how to do so effectively.

Theme 8: Budget Deficits and Financial Planning Constraints: All universities reported persistent fiscal pressure characterised by structural deficits and uncertainty in grant disbursement. Participants indicated that institutional budgets are formulated around projected government allocations, yet actual releases are frequently delayed or reduced. When shortfalls occur, universities adjust by suspending projects, deferring maintenance and reallocating operational funds. Documentary analysis of financial statements confirmed patterns of unpaid obligations, stalled infrastructure development and recurring expenditure backlogs. These conditions shift institutional focus from strategic planning to immediate financial survival, thereby constraining long-term sustainability.

A related constraint concerns tuition regulation. Universities do not possess full authority to determine fee levels independently, as adjustments require ministerial approval. Participants explained that approval processes often extend over long periods, during which inflation and rising operational costs erode the real value of proposed fees. Consequently, even approved adjustments rarely reflect actual expenditure demands. Although some institutions attempt differential pricing for cost-intensive programmes, implementation remains uneven and subject to regulatory scrutiny. Audit reports further revealed inconsistencies in cost-calculation models and identified transparency weaknesses in fee-setting processes. This regulatory arrangement reinforces the ongoing tension between financial viability and the obligation to preserve equitable access to higher education.

Theme 9: Political Regulation of Tuition and Equity Pressures: Tuition-setting processes reflect broader political sensitivities surrounding public access to higher education. Participants explained that fee adjustments are not treated solely as financial decisions but as socially and politically consequential actions. Because universities operate within a publicly funded system, proposed fee increases are subject to ministerial scrutiny to ensure affordability considerations are maintained. This political control reflects the state's role in safeguarding equitable access, but it also restricts institutional flexibility. Administrators noted that tuition discussions often prioritise social stability over full cost recovery, reinforcing the perception that universities function within a tightly supervised public framework rather than as financially autonomous entities. This dynamic reveals the broader governance tension between institutional sustainability and public accountability.

Theme 10: Rules and Practical Ways of Managing Finances: Even though their independence was limited, universities made small changes to improve internal management. They introduced tighter spending controls, focused on essential activities and developed a few small partnerships to help manage financial pressures. However, approval requirements for procurement and project initiation slowed progress. Documentary analysis confirmed compliance with financial rules but limited evidence of strategic financial growth.

Cluster 3: Systemic Reform, Partnerships and Long-Term Sustainability (Themes 11–15)

Theme 11: Governance Frameworks and Conditional Autonomy: Universities demonstrated a mix of internal authority and external control. Councils and senates handled institutional processes, but major decisions required ministerial consent. This structure offered accountability but reduced speed and innovation. Many participants noted a mismatch between institutional expectations and the authority granted to them. Internal statutes often repeat national laws rather than addressing the institution's specific needs.

Theme 12: Policy Fragmentation, Regulatory Density and Financial Transparency: this theme highlights how overlapping and sometimes conflicting rules make governance and financial management difficult. Universities are expected to be creative and flexible, but they must also follow strict public-sector rules. As CA1 explained, “*One law tells us to be flexible and entrepreneurial, another tells us to follow strict public sector procedures*” CA1, Interview, 3rd October 2024 8:52hrs). This contradiction creates confusion and slows decision-making because administrators worry about being questioned during audits. As a result, people hesitate because they are not sure which rule will be applied during an audit. Reporting is often delayed; communication is limited and financial information is not clearly shared.

The system compels universities to act cautiously and defensively, discouraging openness and coordinated decision-making, making governance less clear and less coordinated.

Theme 13: Legal Governance Structures and Financial Constraints: University governance arrangements kept institutions closely aligned with public-sector financial regulations. While these rules helped prevent mismanagement, they also limited innovation, reduced procurement flexibility and slowed project implementation. Institutions found it difficult to introduce income-generating activities because the approval processes took too long.



Theme 14: Working Together Through Partnerships and Shared Leadership: Despite these challenges, universities continued to build partnerships with external organisations, particularly in ICT, student housing and short courses. Participants explained that for these partnerships to succeed, they needed proper planning and close monitoring. Institutional strategic plans showed a growing interest in collaboration, although most of these projects were still in their early stages.

Theme 15: Dependence on Student Financial Aid and Cash Flow Problems: The universities have their major source of income from the state student loan scheme and it has remained the major source of income. However, delays in the release of funds and poor repayment processes led to uncertainty. Many students were unable to access financial support, which led to lower enrolment in some programmes. Recommendations from the Audit reports noted that there should be an improved recovery process which included digital tracking and shared monitoring with universities.

4.2 Discussion

The findings show that privatisation in Zambia's public universities does not operate as a comprehensive or uniform reform. Instead, it appears as a series of selective practices introduced in response to persistent financial pressure, restrictive policy conditions and limited organisational capacity. This pattern is consistent with research across sub-Saharan Africa, where universities adopt market-influenced practices to ease financial constraints while continuing to operate within public accountability structures established by government ministries and regulatory bodies (Teferra, 2017; Woldegiorgis, & Doevenspeck, 2013; Teferra & Altbach, 2004). This reflects what Neave (1998) describes as the "evaluative state," where governments reduce direct financial support while strengthening regulatory control. The discussion below examines how these dynamics shape institutional behaviour and how they inform the development of the RATUS Framework.

4.2.1 Privatisation as a Selective and Adaptive Reform

The study found that stakeholders view privatisation not as a formal strategy but as an adaptive measure to address budgetary gaps. Institutions have introduced cost-recovery programmes, professional short courses, facility rentals and postgraduate programmes to raise additional revenue. However, each initiative must comply with existing statutes and obtain ministerial approval before implementation. This positions privatisation as an institutional response shaped by necessity rather than deliberate policy direction. Similar patterns appear in Ghana and Tanzania, where public universities engage in income-generating activities to support operations while continuing to rely on government allocations as their primary funding source (Materu, 2007). In Zambia, privatisation remains conditional, regulated and shaped by administrative structures that safeguard public accountability. This supports the argument by Teferra and Altbach (2004) that African universities adopt entrepreneurial practices cautiously due to continued state steering and accountability obligations.

4.2.2 Governance, Accountability and Limited Autonomy

Governance arrangements in Zambia's public universities demonstrate a clear separation between internal management and government control. Although universities exercise control over routine administration, major decisions such as senior appointments, financial commitments, tuition adjustments and procurement exceptions require authorisation from the Ministry of Education. This system strengthens accountability but reduces the speed at which institutions can act. Comparable outcomes are observed in South Africa and Kenya, where decentralisation reforms introduced formal autonomy while retaining strong state involvement in critical areas (Woldegiorgis & Doevenspeck, 2013). This arrangement aligns with what De Boer, et al (2007) conceptualise as "regulated autonomy," in which institutions are granted formal decision-making powers but remain substantively constrained by state control mechanisms. Similar mixed governance configurations have been identified in comparative higher education systems undergoing managerial reform (Maassen & Olsen, n.d.).

Participants in this study acknowledged the importance of regulatory control in protecting public resources. Still, they expressed concern that prolonged approval processes weaken competitiveness, delay critical actions and reduce institutions' ability to respond dynamically to academic and financial needs. This tension reflects Bovens' (2007) accountability framework, which explains how mechanisms designed to enhance transparency and answerability can simultaneously generate procedural rigidity. It also resonates with Christensen and Lægreid's (2011) argument that public management reforms often produce mixed governance systems combining managerial autonomy with intensified control.

4.2.3 Financial Management and the Quest for Stability

Financial conditions were identified as the strongest influence on institutional behaviour. All universities reported declining government grants, rising salary obligations, postponed capital projects and delayed operating funds. These challenges force institutions to rely on tuition, which must be approved by the ministry and is shaped by political



considerations of affordability. The result is a recurring funding gap that slows development, reduces staff morale and affects service quality. Interviews and financial records indicated that universities are attempting to adopt stricter budgeting and expenditure controls. However, these measures tend to focus on short-term cost containment rather than long-term financial strategy. Regional comparisons from Uganda, Kenya and Mozambique show similar conditions, with institutions creating income-generating activities that contribute modestly yet rarely produce full financial resilience (Teferra, 2019; Teferra & Altbach, 2004; Cloete et al., 2015). The Zambian case reflects this broader regional pattern. This confirms Christensen and Lægheid's (2011) observation that fiscal decentralisation in public institutions often shifts financial responsibility without transferring sufficient decision-making authority to secure long-term sustainability.

4.2.4 Regulatory Complexity and Policy Fragmentation

The study revealed that multiple legislative instruments, the Higher Education Act, the Public Financial Management Act and the Public Procurement Act, create overlapping requirements that are not always fully aligned. Although each law addresses an important element of governance, financial discipline or procurement control, their combined effect creates complexity for institutions attempting to manage day-to-day operations. Participants noted that regulations from different government agencies sometimes conflicted, resulting in uncertainty about procedures and priorities. Document analysis showed that internal university statutes often reproduce national laws without developing institution-specific guidance. As a result, institutions experience delays in recruitment, limited procurement flexibility, inconsistent reporting practices and interruptions in financial decision-making. These challenges reflect conditions across several African public universities, where administrative frameworks inherited from the public sector often limit the strategic capacity of higher education institutions. This layered governance environment reflects Neave's (1998) analysis of expanding state evaluation and De Boer et al.'s (2007) findings on multi-level control systems in higher education governance.

4.2.5 Emerging Pathways for Reform

Despite multiple constraints, the study found evidence of gradual institutional adaptation. Universities have begun forming targeted partnerships with government agencies, private organisations and industry. They are identifying specialised postgraduate programmes that attract working professionals, improving internal financial controls, expanding digital systems for management and initiating community-based projects that provide both academic and financial value. These efforts indicate that institutions are attempting to build resilience within the constraints of existing statutes.

However, transformation of this kind requires supportive conditions. Institutions need clearer definitions of their decision-making authority, coordinated policy direction across regulatory bodies, strengthened financial management skills and a broader understanding of governance among senior managers. These needs informed the development of the RATUS Framework, which offers a structured approach to integrating regulation, autonomy, institutional initiative and financial planning into a coherent pathway for improving sustainability. This supports Bovens' (2007) position that accountability must be structured in ways that enhance rather than constrain institutional performance and aligns with Christensen and Lægheid's (2011) argument that reform effectiveness depends on balancing autonomy and control.

4.2.6 The RATUS Framework

The findings show that regulation is still necessary, but it must be realistic and suited to what institutions can manage. It should also be guided by ethical responsibility, ensuring decisions support both accountability and fairness. Traditional public administration approaches this differently, focusing on strict rules, centralised control and compliance (Neave, 1998; Christensen & Lægheid, 2011). While this can help protect public resources, it often reduces flexibility and makes it harder for universities to innovate or respond quickly to change.

The RATUS Framework takes a more balanced approach, encouraging the coexistence of regulation and autonomy. Rather than seeing them as opposites, it recognises that each plays a vital role in effective governance. Regulation can provide direction and control, while autonomy gives universities the room to make decisions that fit their specific contexts. This resonates strongly with De Boer et al.'s (2007) notion of regulated autonomy and with Teferra and Altbach's (2004) argument that African higher education reform requires carefully balanced state steering rather than complete deregulation.

The study therefore, suggests that the most effective system is one in which the state and universities work together rather than pull in different directions. In the long run, sustainable higher education depends on coordinated governance, adaptable leadership and a shared commitment to responsibility from both government and institutions.

4.2.7 Conceptual Diagram of the RATUS Framework

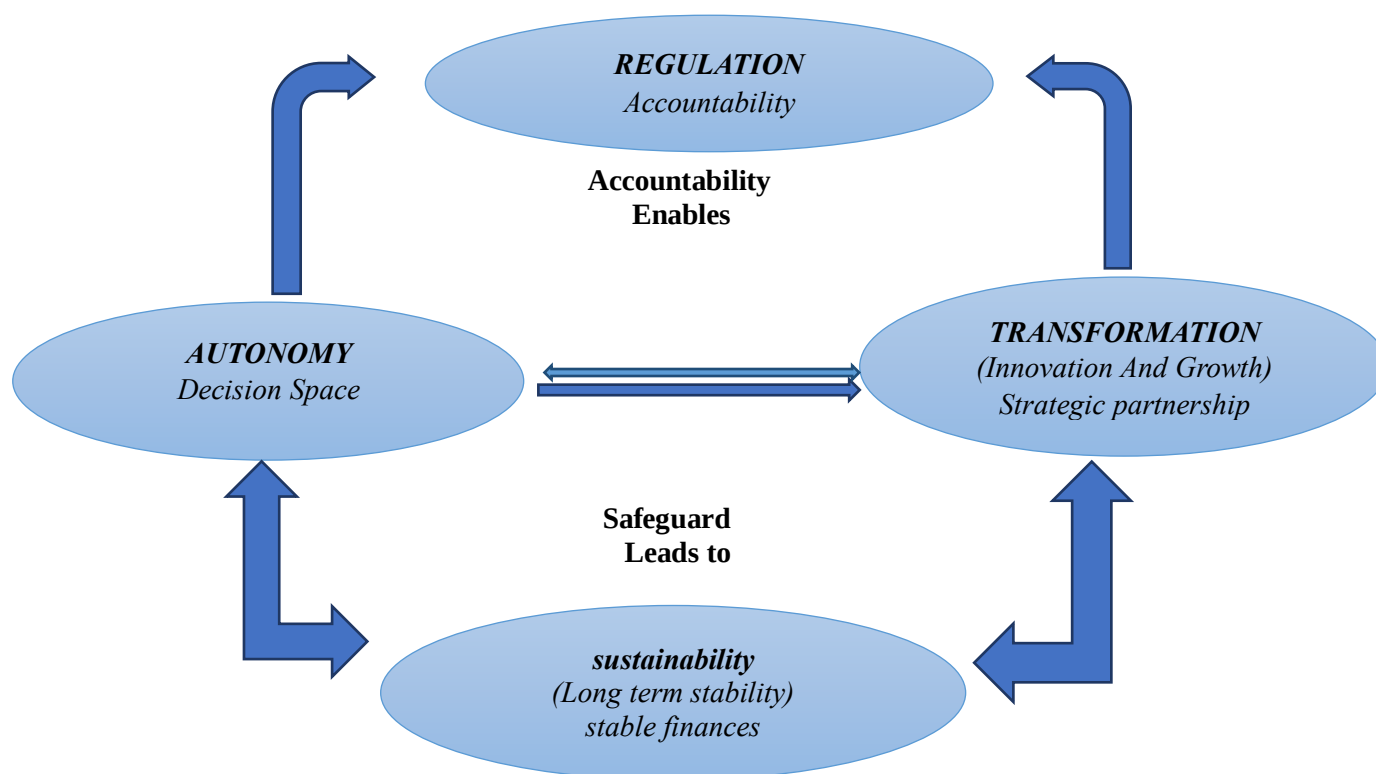


Figure 1
The RATUS Framework

This diagram presents the RATUS Framework, which illustrates the dynamic relationships among regulation, autonomy, transformation and sustainability in Zambia's public universities. Regulation, grounded in accountability, provides the institutional boundaries within which universities operate. Within these boundaries, autonomy creates a structured decision space that allows institutions to make academic and financial decisions. Autonomy interacts directly with transformation, where innovation, strategic partnerships and growth initiatives take place. These processes safeguard sustainability, reflected in long-term stability and stable finances. Importantly, sustainability reinforces regulatory accountability, creating a continuous and balanced cycle. The framework therefore demonstrates that sustainable reform does not result from deregulation alone, but from the coordinated interaction between governance control, institutional decision space and strategic transformation.

4.2.8 Summary Tables

Table 2
Summary of Key Themes

Cluster	Theme	Description
Interpretations	1–5	Selective adoption of privatisation; conditional autonomy; partial diversification
Governance & Finance	6–10	Budget constraints, cautious expenditure, controlled fee setting, statutory governance
Systemic Reform	11–15	Policy fragmentation, growing partnerships, dependence on student loan scheme

**Table 3***Policy Implications Derived from the RATUS Framework*

Area	Implication
Governance	Need for aligned statutory and institutional frameworks
Finance	Need for greater operational discretion and capacity building
Human Resources	Recruitment must shift from administrative to strategic orientation
Policy	Clearer distinction of authority between ministries and councils
Partnerships	Structured guidance required to support engagement with private actors

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study examined how governance arrangements, accountability requirements and the degree of institutional autonomy influence financial sustainability in Zambia's public universities. Drawing on interview data from senior university administrators and government officials, supported by statutory and institutional documents, the findings revealed that privatisation does not operate as a formal national policy but rather as a selective response to ongoing financial constraints and administrative requirements. Universities have adopted several income-generating activities, yet these remain limited in scale due to extensive regulatory conditions, restricted decision authority and prolonged approval procedures.

The study shows that governance structures are shaped by national legislation that prioritises accountability through ministerial and statutory regulation. This arrangement safeguards public resources but reduces the ability of institutions to respond quickly to financial and academic demands. Autonomy exists mainly in routine administrative functions, with significant policy and financial decisions requiring government endorsement. Financial records and interviews confirm that public universities continue to depend heavily on government grants, which remain insufficient to support long-term development. This condition, combined with weak diversification initiatives and restricted space for strategic planning, affects the financial stability of institutions. Policy fragmentation further contributes to these challenges. Universities are required to comply with multiple regulatory instruments such as the Higher Education Act, Public Financial Management Act, and Public Procurement Act that do not always align. These inconsistencies limit institutional discretion and slow administrative processes. Despite these constraints, the study identified emerging efforts among universities to strengthen financial controls, engage in targeted partnerships, expand postgraduate programmes and adopt digital systems to improve efficiency.

To address these complex realities, the study developed the Regulated Autonomy for Transformative University Sustainability (RATUS) Framework, which provides a structured explanation of how regulation, autonomy, transformation and sustainability interact. The framework offers a context-specific model that can guide universities and policymakers in aligning governance practices with financial strategies. It also provides a practical tool for institutional assessment, policy review and long-term planning. Therefore, Zambia's public universities operate within conditions that require a careful balance between state responsibility and institutional initiative. Strengthening this balance will demand clearer policy direction, improved governance capacity, coordinated regulatory supervision and strategic financial planning. The RATUS Framework provides a foundation for such efforts and offers a pathway toward building stronger, more resilient public universities.

5.2 Recommendations

Based on the findings and the RATUS Framework, the following recommendations are proposed for policymakers, university councils and institutional leadership. Legislative reforms are needed to clarify areas of decision authority for public universities. Current laws grant autonomy in principle but limit its practical application through extensive approval requirements. Amendments to the Higher Education Act and related statutes should provide clearer boundaries between ministerial supervision and institutional decision-making. This would reduce administrative delays and create space for universities to implement context-specific strategies as they maintain accountability. Financial capacity must be strengthened across institutions. Many administrators operate under significant pressure due to limited budgeting skills, restricted forecasting tools and an absence of strategic investment planning. Targeted training for financial managers, particularly in budgeting, forecasting and revenue development, would help institutions move beyond basic cost control toward planned growth. Improved financial literacy among senior managers can enhance institutional preparation for long-term sustainability.

Human-resource management should transition toward strategic planning rather than reactive hiring. Institutions frequently delay recruitment due to fiscal constraints and approval processes, which affects teaching quality and administrative efficiency. Workforce planning should be integrated into institutional strategic plans so that staffing



decisions reflect academic needs and financial capacity. Coordination among regulatory bodies should be improved. Multiple ministries and agencies issue guidelines that often conflict, creating confusion and slowing institutional processes. A national coordination platform involving the Ministry of Education, Higher Education Authority and Public Service Management Division would help streamline regulations, harmonise expectations and reduce administrative burden. This would also enhance communication and policy consistency.

Universities should expand income-generating initiatives beyond tuition. Although many institutions operate short courses or consultancy programmes, these remain small in scope due to limited guidance. Clear national guidelines for partnerships, research services and industry collaboration would help institutions pursue sustainable ventures. Institutions should also identify niche postgraduate programmes that meet national priority areas. The national student loan system should be modernised to address delays in disbursement and weak repayment mechanisms. Improved digital tracking, automated communication and institutional involvement in monitoring repayments can reduce funding gaps. Expanding loan coverage would support enrolment growth and improve financial predictability for universities.

The RATUS Framework should be adopted as a reference tool for institutional evaluation, policy review and strategic planning. Its four elements which is regulation, autonomy, transformation and sustainability provide clear indicators that can guide decision-making at institutional and national levels. Embedding the framework in training programmes, audits and strategic planning exercises would support more coherent and stable development across Zambia's public universities.

Declaration on the Use of Artificial Intelligence (AI) Tools

I declare that artificial intelligence (AI) tools were used in a limited capacity to assist with language refinement, grammar checking and formatting. All conceptual development, data collection, analysis, interpretation of findings and framework development are my original work. The use of AI did not replace critical thinking, data analysis or independent scholarly judgment.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Managing the demands of higher education: Perspectives from student mothers at a university in Ghana

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ABSTRACT

The study explored pressures student mothers go through and their coping strategies as they navigate the dual roles of motherhood and academic life within a Ghanaian university. Pivoted on the ideals of role theory and guided by the interpretivist paradigm, the study employed a qualitative case study design to gain in-depth understanding of participants' experiences. With a population of student mothers within a faculty of the university, a census sampling technique was used to sample nine (9) participants. Data were collected using a semi-structured interview guide, which permitted participants to recount stories in their own voices. Using thematic analysis as the main analytical procedure, the study revealed, among others, that student mothers faced challenges such as time management difficulties and exhaustion, emotional and psychological strain, financial constraints, and institutional and structural deficiencies that limited their ability to effectively balance academic and parenting responsibilities. In the face of these challenges, student mothers employed various coping strategies such as adaptive time management and study patterns, participation in study groups and support networks, reliance on family and community support, and the use of emotional and spiritual coping mechanisms. The study concludes that while student mothers demonstrate resilience in managing multiple demands, their reliance on personal and informal support systems exposes the weaknesses in institutional support within the university context. The findings advocate the need for higher education institutions to adopt more inclusive policies and practices that recognize the unique challenges faced by student mothers.

Keywords: Coping Strategies, Qualitative Study, Role Theory, Student Mothers, Tertiary Education

I. INTRODUCTION

There is a global recognition of the importance of female education, yet many women face substantial challenges when pursuing higher education. Among them, the situation of student mothers has been very precarious over the years as they have had to balance the competing demands of academic life and childcare responsibilities. Studies point to a reality where student mothers constitute a growing demographic in higher education. For example, Dundar (2024) observed that a significant number of United States' college student populations are parents. Relying on the 2020 National Postsecondary Student Aid Study (NPSAS) data, he said, nearly one in five undergraduate students (18 percent) are raising children while enrolled. That amounted to 3.14 million individuals who were going through postsecondary education to change their own futures as well as shape the future of their families. Noll et al. (2017), had stated that in the United States, about 22% of all undergraduate students are parents, and of these, 70% are mothers (Noll et al., 2017). Brown and Nichols (2013) found that pregnant and parenting students constitute one of the most vulnerable populations in higher education, as they often lack adequate institutional support.

In universities across the globe especially in African, student mothers are balancing the dual roles of mothers and students with its associated challenges. Anibijuwon and Esimai (2020) identified that majority of the student mothers faced financial, childcare and academic challenges. The challenges are diverse, therefore calling for diversified survival strategies. While some opt for emotion-focused coping strategies, others prefer problem-focused coping strategies such as engaging in part-time jobs and small businesses to manage financial challenges, hiring part time babysitters and using friends/relatives to take care of the child while in class, engaging in private studies during daytime, interacting with hardworking students and severing links with lazy friends (Kisanga & Matiba, 2023). In their efforts to manage the challenges through these strategies, Kisanga and Matiba indicated that, they sometimes rather compound the problem and worsen their situation. Sheila (2018) stated that the inability of student mothers in coping with the demands of

motherhood responsibilities coupled with academic demands brings about stress, poor health of student mothers, which negatively impacts their social and academic needs. All these factors contribute to poor performance, and delayed completion rates of student mothers (Sheila, 2018). Adofo (2013) had observed that a number of student mothers were lagging behind in access and participation in education because of the enormity of the challenges they face and how they strive to cope. In Ghana, the trend is increasingly evident, particularly with the expansion of distance and sandwich programmes that allow more women, including mothers, to access tertiary education (Dankyi et al., 2019). However, this expansion in student mothers on campuses has brought about visible challenges, such as the need for childcare spaces on campuses, flexible scheduling, and financial aid mechanisms directed to their circumstances.

Generally, studies on student mothers highlight recurring themes of time management difficulties, financial constraints, lack of childcare, and the experience of role conflict as they combine academic responsibilities with parenting (Hinton-Smith et al. 2018; Morandet & Wainwright, 2010). These challenges often translate into lower retention and completion rates compared to their peers. Morandet and Wainwright (2010) and Dasig (2020) emphasized that time, finances, and childcare remain the most critical barriers, while Anane et al. (2021) outlined the psychological and emotional burdens faced by student mothers in Ghana, who often sacrifice personal well-being to meet their dual responsibilities. Other studies, however, tend to focus on broad overviews of challenges faced by student mothers, with limited attention to how these students are coping with the challenges (Baluyos & Alvarico, 2024; Moore-Smith, 2024; Moreau & Kerner, 2015).

Across many higher education institutions, student mothers continue to encounter significant barriers that compromise their academic participation and success. Universities are often designed with the assumption of the “traditional student,” one without major caregiving responsibilities, which creates systemic gaps in addressing the needs of students who combine academic work with parenthood (Moreau & Kerner, 2015). Kanana et al. (2021)’s study discovered that 92% of student mothers faced time management difficulty with respect to lecture attendance, co-curricular activities, childcare responsibilities, and domestic chores, academic trips, taking the child to clinic, assignments submission, academic group discussions and academic trainings. Nevertheless, they found also that 96% of the student mothers received family support to meet day to day expenses while learning. What is of much concern is whether the support was enough in insulating the student mothers from the challenges of balancing motherhood and academic life.

It must be admitted that this topic has received much attention in the literature justifying the importance of the issue to scholars and institutions. It is an issue which needs constant monitoring to provide an accurate picture of how student mothers are faring in their dual roles on campuses. In view of this, this study, therefore, seeks to build upon and extend existing scholarship by focusing on the unique challenges and coping strategies of student mothers a faculty in the selected Ghanaian university. In achieving this, two questions have been posed to guide the study: (i) What challenges are faced with student mothers in combining motherhood and academic responsibilities in the Ghanaian University? (ii) How do student mothers manage the pressures associated with the mixture of motherhood and academic life in the Ghanaian University?

1.1 Statement of the Problem

Notwithstanding the global emphasis on the value of female education, a substantial number of females experience numerous challenges in their pursuit of higher education. Worthy to mention is the situation of student mothers in tertiary institutions. In various universities, especially in Africa and Ghana in particular, student mothers have had to balance the competing demands of academic life and childcare responsibilities. In the United States, about 22% of all undergraduate students are parents, and of these, 70% are mothers (Noll et al., 2017). Similarly, Brown and Nichols (2013) found that pregnant and parenting students represent one of the most vulnerable populations in higher education, as they often lack adequate institutional support. In Ghana, the trend is increasingly evident, particularly with the expansion of distance and sandwich programmes that allow more women, including mothers, to access tertiary education (Dankyi et al., 2019). The rise in student mothers has brought about visible challenges, such as the need for childcare spaces on campuses, flexible scheduling, and financial aid mechanisms tailored to their circumstances. Student mothers are equally people with “special needs” at least for the period within which they stay on the campuses for their studies. Yet, in most cases, they are left to their own fate on the various campuses.

Additionally, the absence of dedicated resources, including childcare facilities, financial aid programs, and flexible academic policies, hinders their holistic development and academic success. Inadequate support intensifies challenges such as time management difficulties, financial strain, and societal stigmatization, ultimately limiting their ability to integrate fully into the academic environment. The increasing enrolment of nursing mothers has further highlighted this problem. Observations at the study setting in November 2023 revealed that some lecturers and invigilators were compelled to babysit for student mothers during examinations to reduce their burden. The situation has not changed now. Similarly, student mothers were often seen with babies and caregivers on campus in search of safe spaces to breastfeed or rest. Informal interactions with student mothers confirmed that they face significant struggles in



caring for their babies while fulfilling their academic obligations. These challenges have clearly been accentuated by studies such as Dankyi et al. (2019 and Anane et al. (2021). Dankyi et al. (2019), in their mixed-method study of student mothers at the University of Cape Coast, which found that many struggled with fatigue, irregular lecture attendance, and the absence of lactating rooms. Anane et al. (2021) further observed that student mothers encounter multiple social, academic, psychological, and financial difficulties, often experiencing role conflict in trying to meet both academic and mothering responsibilities. By situating this problem within both global and Ghanaian contexts, the study addresses gaps in the literature regarding an evaluation of the coping strategies employed by the student mothers.

1.2 Research Objectives

- i. To explore the challenges faced by student mothers in combining motherhood and academic responsibilities in the Ghanaian University.
- ii. To explain how student mothers manage the pressures associated with the mixture of motherhood and academic life in the Ghanaian University.

II. LITERATURE REVIEW

2.1 Theoretical Review

This study was underpinned by the role theory. The basic tenets of the Role theory has been developed over the years by a number of scholars (Mead, 1934; Linton, 1936; Parsons, 1951; Merton, 1957). These scholars have contributed to the development of the basic concepts and frameworks that have fashioned role theory into a comprehensive approach to explaining social behaviour and interactions within various contexts. Role theories began to take shape in the 1950s and became very popular in management research around the 1960s. Fundamentally, Role theory examines how individual behavior is shaped by prevailing social roles and provide insights into how behavior is understood by others in relation to such roles (Anglin et al, 2022). Role theory operates under the key assumption that individuals have various roles that they play in daily life (Biddle, 1986). These roles affect how the individual behaves and sees himself/herself and how the individual's behavior is perceived by others. Thus, an individual's behavior can be understood and predicted if one knows the roles occupied and the corresponding behavioral expectations tied to that role (Anglin et al, 2022).

Associated with the role theory is the idea of conflict. Goode (1960) stated that role conflict arises when individuals experience competing demands and pressures from different roles they occupy. In the case of student mothers, the demands of education, such as attending lectures, completing assignments, and participating in extracurricular activities conflict with the responsibilities of parenting, such as childcare, caring for children, and managing household tasks. This conflict can be intensified by institutional expectations and societal norms regarding both roles, creating additional stress and pressure for student mothers.

Moreover, role strain, which refers to the stress and tension experienced when individuals make the effort to meet the demands of a single role, can also be prevalent among student mothers. Balancing the responsibilities of parenthood and academic pursuits can be emotionally and physically demanding, leading to feelings of exhaustion, and burnout (Sieber, 1974). Role theory adopted for this study therefore provides the pathway for a better understanding of the multiple roles individuals occupy and the expectations associated with each role. This is useful for analyzing how student mothers balance their dual roles as students and parents. Again, it would also assist in predicting potential conflicts and stress that emanate from role conflict, which are common issues for student mothers. That said, the theory would offer insights into how role expectations influence behaviour, which can be valuable for developing support programs that address specific role-related challenges in other institutions.

2.2 Empirical Review

2.2.1 Challenges faced by Student Mothers

Balancing the demands of higher education with the responsibilities of motherhood presents a formidable challenge for many women pursuing academic degrees. While higher education offers opportunities for personal and professional advancement, student mothers often encounter unique obstacles that can hinder their academic success. This review critically examines the challenges faced by student mothers in higher education, drawing on existing literature to elucidate the complexities of their experiences. These challenges are, financial strain and economic pressures, limited access to support services, time management and work – life balance, academic challenges, and difficulty in maintaining consistency.

As indicated above, one of the primary challenges confronting student mothers is the financial strain associated with pursuing higher education while supporting a family. According to a study by Gerrard & Roberts (2006), student mothers often struggle to cover the costs of tuition, textbooks, and childcare expenses, which can result in financial

hardship and increased stress. Additionally, student mothers may face limited access to financial aid and scholarships, further exacerbating their financial difficulties (Daniel & Madugu, 2023; Febrianto, 2021).

Furthermore, access to support services such as childcare facilities, academic counselling, is essential for the success of student mothers in higher education. However, studies indicate that many institutions lack adequate resources to meet the needs of student mothers (Dillon & Jessica, 2023; Kensinger & Minnick, 2018; Sallee et al. 2023). For example, a survey conducted by Dillon and Jessica (2023) found that only a small percentage of colleges and universities offer on-campus childcare options, forcing student mothers to seek alternative arrangements that may be costly or unreliable. Furthermore, a survey by McMillen (2022), many student mothers report feeling overwhelmed by the lack of support and guidance from academic advisors, which can hinder their ability to navigate complex academic requirements and procedures.

In addition, juggling the demands of coursework, parenting, and household responsibilities requires exceptional time management skills and a delicate balance between competing priorities. Student mothers often find themselves stretched as they attempt to fulfill their academic obligations while meeting the needs of their families (Mordi et al., 2023; Israel et al., 2017). A qualitative study by Thomas (2023) revealed that student mothers frequently experience feelings of guilt and self-doubt as they struggle to allocate time and energy effectively between their roles as students and mothers. Research by Opit et al. (2020) indicates that student mothers often struggle to allocate sufficient time for studying and coursework amidst childcare duties and household chores. The demanding academic workload further exacerbates this challenge, leaving student mothers with limited time and energy to devote to their studies (Opit et al., 2020).

Moreover, the pursuit of higher education while balancing the responsibilities of motherhood presents a myriad of academic challenges for student mothers. From managing coursework to navigating institutional barriers, these individuals often encounter obstacles that can impact their academic performance and overall success (Lynch, 2017). Institutional policies and support systems frequently fail to address the unique needs of student mothers, leading to increased stress and difficulty in maintaining academic commitments (Kruvelis et al., 2017).

Finally, consistency is crucial for academic success, yet student mothers often face interruptions and disruptions to their studies due to family responsibilities. A study by Daniel and Madugu (2023) found that student mothers frequently encounter difficulties in maintaining consistent attendance and participation in classes, as they may need to prioritize childcare or attend to family emergencies. These disruptions can impede their progress and contribute to feelings of frustration and inadequacy.

2.2.2 Coping Strategies Employed by Student Mothers

The survival of student mothers on various campuses depends to a large extent on their ability to devise strategies managing the pressures associated with efforts to combine motherhood responsibilities with academic work. In the literature are strategies such as time management and prioritization, seeking social support, utilizing flexible learning options, leveraging institutional resources and support services, self-care and prioritizing well-being.

Effective time management emerges as a cornerstone for student mothers in higher education. Research by Garingan (2023) emphasizes the importance of prioritizing tasks and allocating time efficiently to balance coursework, parental duties, and personal commitments. By employing strategies such as creating structured schedules and setting realistic goals, student mothers can optimize their time and maximize productivity in both realms (Wekullo & Isna, 2020; Garingan, 2023).

Additionally, building a supportive network of peers, family members, and community resources is essential for student mothers navigating the challenges of higher education. Studies by Anane et al. (2021) emphasize the significance of seeking social support to mitigate feelings of isolation and stress. Engaging with fellow student mothers through support groups or online forums fosters a sense of companionship and validation, empowering student mothers to navigate academic and maternal responsibilities more effectively (Grassetti, 2013; Miyata, 2002).

Furthermore, embracing flexible learning options, such as online courses or evening classes, enables student mothers to accommodate their academic pursuits within the constraints of their caregiving responsibilities. Research highlights the value of flexible learning arrangements in facilitating access to higher education for student mothers (Cuming et al., 2023). By capitalizing on flexible scheduling and remote learning opportunities, student mothers can overcome logistical barriers and pursue their educational goals more seamlessly.

Moreover, accessing institutional resources and support services is instrumental in facilitating the academic success of student mothers. A study by Sallee et al. (2023) stresses the importance of leveraging childcare facilities, academic advising, and financial assistance programs offered by colleges and universities. By capitalizing on these resources, student mothers can alleviate financial strain, receive academic guidance, and access childcare options that accommodate their scheduling needs.

Moreso, prioritizing self-care and well-being is paramount for student mothers navigating the demands of higher education and motherhood. Research by Creasman (2022) emphasizes the importance of self-care practices such as



exercise, mindfulness, and seeking professional counselling support. By prioritizing their physical and mental health, student mothers can mitigate burnout, enhance resilience, and sustain their academic pursuits over the long term.

In conclusion, student mothers employ a diverse array of strategies to navigate the challenges of higher education while fulfilling their maternal responsibilities. From effective time management and seeking social support to leveraging flexible learning options and prioritizing self-care, these strategies enable student mothers to thrive academically and personally. By recognizing and supporting the resourcefulness of student mothers, institutions can foster a more inclusive and supportive higher education environment that empowers student mothers to achieve their academic aspirations.

III. METHODOLOGY

3.1 Research Design and Approach

The study was underpinned by the interpretivist philosophical position, a paradigm that emphasizes understanding the subjective meanings and experiences individuals attach to their realities. It is based on the assumption that reality is socially constructed and can only be understood from the perspective of those who experience it (Denzin & Lincoln, 2018). In line with the interpretivist paradigm, the study followed the qualitative approach of enquiry. The interpretivist paradigm and the qualitative approach enabled a deeper understanding of the context-specific issues relating to experiences of student mothers and their coping strategies in Ghanaian universities and Africa in general. The qualitative approach required a choice of a qualitative design thereby settling on case study as a design for the study. Yin (2018) described case study design as a qualitative research procedure that involves an in-depth exploration of a specific phenomenon within its real-life context. He further emphasized the suitability of case study in terms of its ability to address the "how" and "why" research questions within complex social contexts. Case study is particularly advantageous for studying phenomena that are deeply influenced by the social, institutional, and cultural contexts in which they occur (Stake & Visse, 2025). It enables the researcher to uncover notes, patterns, and relationships that might not be evident through broader quantitative methods. Given the relatively limited literature on the experiences of student mothers in Ghanaian universities, the case study design is well-suited for exploring the various dimensions of the challenges of student mothers and their coping strategies. It provides a foundation for understanding this under-researched area and generating insights that could inform future studies and policy development (Baxter & Jack, 2008).

3.2 Population and Sampling

The population for this study comprises all student mothers enrolled in a faculty in the chosen Ghanaian University. Due to the absence of a centralized record of student mothers, the researchers engaged with the department presidents and course representatives to identify the 45 student mothers within the selected faculty. This population includes both undergraduate and graduate students who navigate the dual responsibilities of academic commitments and childcare. The subjects of this study were student mothers enrolled in various programs within the faculty. These participants are characterized by their dual roles as students and mothers, often balancing academic demands with childcare responsibilities.

In terms of sampling, a snowball sampling technique was employed to select a sample of nine (9) student mothers for this study. Snowball sampling is a non-probability sampling technique where existing study participants recruit future participants from their networks. This method is particularly useful when studying hard-to-reach or hidden populations, such as marginalized groups or individuals with specific characteristics (Naderifar et al., 2017). It begins with a small group of initial participants, known as "seeds," who refer others, creating a chain-like recruitment process. While it is cost-effective and efficient, it may introduce selection bias since participants are likely to recommend individuals with similar traits. Despite its limitations, snowball sampling remains a valuable tool for qualitative and exploratory research. Additionally, the choice of nine (9) as the sample size aligns with Bernard (2013) who estimated a minimum of six (6) participants for a qualitative study. A sample size of nine (9) could be adequate especially when the sample is homogeneous (Bekele & Ago, 2022), like student mothers in the same faculty.

3.3 Instrumentation

A semi-structured interview guide was chosen as the primary research instrument. A semi-structured interview guide is characterized by a predetermined set of open-ended questions, allowing for both standardized responses and the flexibility to probe deeper into participants' answers (Bryman, 2016). The interview guide was divided into two main sections. The first section, Section A: Demographics, aimed to gather background information about the participants. It included questions that focused on the personal and academic details of the respondents, such as their age, academic level, and employment status. This demographic information was crucial for providing context to the responses and understanding how various factors may influence the challenges faced by student mothers. The second section, Section B: Thematic Questions Based on Research Objectives, contained questions structured around the two

research objectives. Each objective had five corresponding questions. The choice of a semi-structured interview guide was guided by the belief that, unlike structured questionnaires, semi-structured interviews allow for follow-up questions and clarification, leading to richer and more detailed data (Kvale & Brinkmann, 2015).

3.6 Data Collection Procedures

After obtaining formal access to the chosen faculty, the data collection process continued with a pilot test, which was essential for refining the interview guide and ensuring that the questions were clear, relevant, and capable of eliciting comprehensive responses (Castillo-Montoya, 2016). The pilot test was done on three (3) participants in a faculty other than the one chosen for the actual study. After the pilot test, potential participants were identified and contacted, and a convenient time and location for the interviews were agreed upon. To accommodate participants' preferences, interviews were conducted both face-to-face and, on the phone (Novick, 2008). Face-to-face interviews took place in a quiet, private setting within the university to maintain a confidential environment. Phone interviews also ensured privacy and flexibility for participants. All interviews were audio-recorded with participants' informed consent to guarantee the accuracy of data capture and facilitate precise transcription (Merriam & Tisdell, 2015). Each interview lasted between 20 to 30 minutes, a duration considered sufficient to engage participants meaningfully without imposing undue time constraints. The entire data collection process spanned six working days and one weekend, which was necessary to accommodate the availability of participants upon pre-informing them.

3.7 Data Analysis Procedures

Thematic analysis was employed as the method of data analysis, as it is effective for identifying, analyzing, and reporting recurring patterns or themes in qualitative data (Braun & Clarke, 2006). The researcher followed a systematic six-phase process to ensure rigor and depth. These phases included familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report (Braun & Clarke, 2021). This iterative process enabled the exploration of key experiences and challenges faced by student mothers in the faculty. In familiarizing ourselves with data, listened to the audio a number of times and then the transcription followed manually ensuring that participants' voices were accurately captured (Oliver et al., 2005). Transcriptions were carefully reviewed against the recordings to ensure accuracy, with personal identifiers removed to maintain confidentiality (Creswell & Poth, 2018). Data cleaning followed, involving correction of errors, removal of repetitions, and organizing the transcripts into meaningful sections aligned with the research objectives (Bryman, 2016).

The coding and theme development process was also conducted manually. The researchers engaged in repeated readings of the transcripts to gain familiarity with the content, highlighting meaningful phrases and assigning codes to relevant data segments. Codes were iteratively refined and grouped into categories, from which broader themes were developed. These themes were validated against the raw data to ensure coherence and relevance to the research questions. Overlapping themes were merged, and representative quotes were selected to give voice to the participants. The final themes were then integrated into a narrative that directly addressed the research questions, ensuring that findings were both credible and firmly grounded in participants' lived experiences.

3.8 Trustworthiness

Trustworthiness in qualitative research encompasses credibility, dependability, confirmability and transferability (Lincoln & Guba, 1985). Credibility strategies employed in this study were member checking, peer debriefing and prolonged engagement through the 20-30 minutes interview duration. For example, member checking was conducted, allowing participants to review their transcripts within a week of the interviews. This process provided them with the opportunity to confirm the accuracy of their responses and clarify any misinterpretations (Birt et al., 2016). Peer debriefing was done as the researchers consulted with academic colleagues to discuss coding decisions and thematic development, which helped reduce researchers' bias and encouraged alternative interpretations (Shenton, 2004).

Dependability was addressed through rigorous documentation and transparent processes. The research design, interview protocols, transcription methods, and analytic procedures were carefully described to ensure auditability (Lincoln & Guba, 1985). The use of a semi-structured interview guide contributed to dependability as the open-ended nature of the interviews allowed for deeper exploration of individual experiences (Kallio et al., 2016). Confirmability was ensured in this study through the use of an audit trail, which served as a critical tool for maintaining transparency and rigor. An audit trail involves systematically documenting the research process, particularly the decisions and steps taken during data analysis. For example, it includes detailed records of coding procedures, thematic development, and decisions made in response to emerging patterns in the data. This comprehensive documentation allows external reviewers or peers to trace the research steps and verify that the findings were grounded in the data rather than shaped by researcher bias (Lincoln & Guba, 1985). Transferability was ensured through the use of thick description, detailed

description of data collection and analysis, and use of participants' quotations. These enable readers to assess the applicability of the findings to other settings.

3.9 Ethical Considerations

Ethical considerations were paramount in this study due to the sensitive nature of the research topic, which explores the experiences of student mothers navigating academic and parenting responsibilities. To uphold ethical standards, informed consent was obtained from all participants before data collection. Each participant was thoroughly briefed on the study's purpose, procedures, and potential risks, ensuring they understood their rights, including the option to withdraw from the study at any point without any negative consequences. Additionally, confidentiality was strictly maintained throughout the research process by anonymizing participants' data, which included using pseudonyms and removing identifiable information from transcripts. Audio recordings of the interviews were securely stored in password-protected files to prevent unauthorized access, thus safeguarding participants' privacy (Creswell, 2013).

3.10 Researcher Positionality

The researchers (DA, HK and MQ) acknowledge their positions as pseudo-insider and outsiders to the community of student mothers as well as empathetic observers who value the experiences of these students' mothers. At the time of data collection, first researcher, DA was a graduate student and this makes her a pseudo-insider. As a student, she was privy to some of the experiences and challenges of these students but because she was not a mother, she lacked an empathetic understanding of the experiences of these students' mothers. Second (HK) and third (MQ) authors were outsiders. At the time of data collection, they were lecturers in the selected faculty. Being males and lecturers placed them outside the circle of students and mothers. In all, the stated positionality of the authors demonstrates their inability to be biased in the data collection and analysis processes.

IV. FINDINGS & DISCUSSION

4.1 Response Rate

The demands of academia often present substantial challenges for student mothers, who must combine their academic obligations, such as coursework, exams, and assignments, with the responsibilities of caring for their children and managing household duties. This section delves into the unique challenges these student mothers face and the strategies they employ to navigate these dual roles based on the student mothers' responses. The section is organised around the two research questions that underpinned the study. Four sub-themes were derived in relation to the first research question. Six sub-themes were also derived from data gathered on research question two. The themes are presented with verbatim texts as evidence of the discussions that follow. The discussions are done in the light of existing literature related to the themes.

4.1.1 What challenges are faced with student mothers in combining motherhood and academic responsibilities in the Ghanaian University?

The four sub-themes derived under research question one are: Time Management and Exhaustion, Emotional and Psychological Strain, Financial Strain, and Institutional and Structural Deficiencies. These are discussed below:

Theme 1: Time Management and Exhaustion

A dominant challenge reported by student mothers at the Ghanaian University is the struggle to balance academic and domestic responsibilities, resulting in significant time management issues and exhaustion. The data reveal a recurring theme where many student mothers find it exceedingly difficult to balance their coursework with the extensive demands of childcare and household chores, often leaving them with little time or energy for academic pursuits. This challenge resonates with the finding of Dankyi, et al. (2019) highlighting the struggles of distance education student mothers in combining face-to-face lectures and parenting responsibilities in Ghana.

The experiences of respondent 1 picture the overwhelming nature of this dual responsibility. She said: *"Balancing my academic responsibilities with caring for my children is incredibly challenging. Between cooking, school drop-offs, and house chores, I have little time or energy left for studying, which has led to constant tiredness"* (SM1).

She continued:

"The financial strain of living far from school adds to the pressure. Travel costs force me to take on part-time work, leaving even less time for my studies and increasing stress. This combination of time constraints and financial difficulties makes it hard to keep up with both my academic and personal responsibilities" (SM1)

The statements from Student Respondent 1, managing children's needs while attending lectures and doing house chores leaves no time for learning. Financial strain due to living far from school reflects a multifaceted challenge that many student mothers face in balancing their academic and personal lives. The texts outline two key issues: the intense time constraints caused by domestic and childcare responsibilities, and the financial pressures exacerbated by living far from the university. Both factors significantly hinder the ability to dedicate time and energy to academic pursuits, creating an environment where academic engagement is not just difficult but nearly impossible.

The first issue emphasized the physical and emotional toll that domestic responsibilities place on student mothers. This constant fight between academic obligations and childcare duties is not only time-consuming but mentally exhausting. Research in the field supports this notion, with studies revealing that student mothers are often overburdened by household chores and childcare responsibilities (Bojuwoye, 2002). For these mothers, their day often begins early in the morning and ends late at night, with little opportunity for rest or academic focus. This leaves little room for the kind of sustained academic engagement that is necessary for success in higher education. In addition to the time constraints posed by domestic responsibilities, the financial strain mentioned adds another layer of complexity to the issue. Living far from campus creates additional travel costs, which often forces student mothers to seek part-time employment or engage in other income-generating activities. This financial pressure not only drains the energy and time available for academic work but also contributes to heightened stress and anxiety. The link between financial strain and academic performance has been well documented in the literature, with studies showing that students who face financial difficulties often experience higher levels of stress, lower academic achievement, and reduced engagement in campus life (Mahdavi et al., 2023). For student mothers, this stress is compounded by their need to balance work, academic responsibilities, and childcare duties, creating a situation where they are continually caught in a cycle of exhaustion and financial strain.

Even more, the issue of financial strain is not limited to travel costs; it also spines to the broader financial challenges of raising children while pursuing higher education. As noted in the study by Fatima et al. (2025), many student mothers are forced to balance their academic work with employment, which further impairs the lack of time to study. This financial strain often leads to increased fatigue, as student mothers must struggle through the demands of work, childcare, and academic responsibilities. These external pressures further impede their ability to focus on academic tasks and contribute to an overall sense of burnout. According to Miranda (2020), the financial instability faced by student mothers can significantly impact their mental health, leading to heightened stress and anxiety, which in turn reduces their ability to concentrate on academic tasks. A similar sentiment is expressed by respondent 3, who discusses the physical toll of balancing academic and domestic life:

"The constant challenge of managing time between academic duties and household chores leaves me drained and stretched thin. Every day feels like a race against time, often forcing me to sacrifice one responsibility for the other" (SM3).

The responses reflect the significant challenges that student mothers face in managing the dual responsibilities of academics and home life. As Rabbi and Islam (2024) highlight, the mental toll of balancing these responsibilities can lead to chronic stress, which impairs cognitive functions and academic performance. The time management struggles further intensify this issue. According to Nisa et al. (2024), effective time management is crucial for academic success; however, for student mothers, the pressures of home life often undermine their ability to allocate sufficient time for academic tasks. This results in disrupted study schedules, fragmented learning experiences, and, ultimately, lower academic achievement. As Moen and Sweet (2018) argue, the imbalance between academic and domestic demands can perpetuate a cycle of stress and underperformance, diminishing student mothers' potential for academic success.

The cumulative data from these respondents present a consistent picture of the competing demands that student mothers face. The balancing act of managing household chores, childcare, and academic responsibilities leaves student mothers exhausted and with little room to effectively manage their time or engage in their studies. This not only diminishes their academic performance but also undermines their ability to participate fully in the educational experience. These findings resonate with the broader literature on the challenges faced by student mothers. Fatima et al. (2025) emphasize the systemic nature of these challenges, which prevent student mothers from fully succeeding in both their academic and familial roles. Without targeted institutional support to address these burdens, student mothers are left in a position where exhaustion becomes the norm, inhibiting both their academic progress and overall well-being.

Given the pervasive nature of these challenges, addressing time management issues among student mothers requires more than just recognizing the problem; it requires holistic institutional interventions. Universities should consider providing both financial and emotional support, alongside practical solutions such as on-campus childcare services, flexible study hours, and academic accommodations. These measures would ease some of the burdens faced by student mothers, allowing them to engage more fully with their academic work, reduce their stress levels, and achieve greater academic success. Thus, addressing the time management issues of student mothers is not merely an academic concern but an essential step toward fostering an equitable and supportive educational environment for all students

Theme 2: Emotional and Psychological Strain

The emotional and psychological strain experienced by student mothers at the University, is a significant factor that worsens the challenges of balancing motherhood and academic responsibilities. Participants provided insights into the emotional toll that this dual role has on their well-being and academic progress. Student Respondent 6 stated:

“After my husband’s death, I faced immense emotional stress and even considered dropping out of school. On top of that, my child’s health issues severely impacted both my financial situation and academic performance” (SM6).

This response highlights the emotional burden of dealing with grief, the responsibility of single-handedly caring for a child, and the additional pressure of academic commitments. The death of a spouse significantly impacts a mother’s ability to focus on her studies, contributing to overwhelming emotional strain. The respondent’s contemplation of dropping out of school illustrates how personal loss, compounded by the demands of academic life, can drive student mothers to the brink of academic withdrawal. Research by Roberts et al. (2018) identifies such emotional challenges as common among student mothers, noting that anxiety, depression, and stress often emerge when student mothers lack sufficient emotional or institutional support.

Student Respondent 2 indicated:

“I’ve struggled to balance my education and motherhood, constantly dealing with a lack of rest and emotional challenges, especially when my child is sick. On top of that, financial difficulties have made things even harder” (SM 2).

This respondent emphasized the emotional difficulty of managing a sick child while attempting to keep up with academic responsibilities. The demands of motherhood are intensified when a child falls ill, and this leaves the mother not only physically exhausted but also emotionally drained. The respondent’s challenges reflect a broader pattern of stress among student mothers who struggle to find a balance between caring for their children and keeping up with schoolwork. Studies have shown that mothers often feel torn between their parental and academic roles, leading to feelings of guilt and inadequacy, which further heighten their emotional strain (Fatima et al. 2025). This emotional struggle often leads to poor academic performance, as the mental energy needed for studying is drained by the emotional toll of caregiving (Moreau & Kerner, 2015).

The reference to financial difficulties further intensifies the emotional burden, as financial insecurity adds an extra layer of stress. As Miller and Smith (2020) suggest, the interplay of financial and emotional challenges is particularly acute for student mothers, who often face the dual stressors of providing for their children and maintaining their academic progress. Emotional and psychological challenges among student mothers are deeply interconnected with the physical demands of motherhood and the academic pressures of university life. The narratives shared by respondents reveal that emotional strain often stems from the inability to adequately meet the expectations of both roles. For instance, Student Respondent 6’s situation shows that the emotional toll of grief and caregiving often leads to academic disengagement. Similarly, Student Respondent 2’s difficulty in managing a sick child and academic deadlines reflects the broader theme of emotional distress caused by conflicting priorities, which is a major barrier to their academic success.

Theme 3: Financial Strain

One of the most prominent challenges faced by student mothers at the University, is financial strain. This issue surfaces repeatedly in the responses in previous themes, as it severely impacts the ability of student mothers to balance their academic responsibilities with the demands of motherhood. Financial hardship not only affects their day-to-day living but also extends to their academic performance, often leading to stress, diminished focus, and potential dropout.

Respondent 1 highlights the burden of living far from the school campus, which incurs significant transportation costs. The financial outlay for commuting daily, tied with general living expenses, creates substantial stress. For student mothers who are already grappling with limited financial resources, these recurring costs pose a formidable challenge. The situation is compounded by the responsibilities of caring for children, as Respondent 1 explains:

“I am constantly struggling with the high cost of living far from the school. The transportation fees are unbearable, and I don’t have enough money for textbooks or other essentials. I have to pay for almost everything when I come to campus, which drains me financially because things are very expensive here” (SM1)

Respondent 1’s experience sheds light on a critical and pervasive issue faced by student mothers: the financial burden of living far from campus. The high transportation costs mentioned reflect more than just a monetary strain. They symbolize a barrier to equitable access to education. For student mothers, these expenses are not merely inconvenient; they compound the challenges of managing academic responsibilities with childcare and domestic tasks. The inability to afford essential academic materials, such as textbooks, further amplifies the disadvantage. This material deprivation diminishes their ability to engage effectively with their studies, creating a gap in academic preparation compared to peers who do not face such barriers. Coupled with the physical and emotional toll of managing household

duties and childcare, these financial pressures drain cognitive resources, making it harder for student mothers to concentrate or perform academically.

Similarly, Respondent 2 shares how the financial strain is impaired by children's healthcare costs. She recounts the difficulty of balancing academic work with the emotional and financial challenges of having a sick child. Medical expenses, as well as the need to attend to her child's health, not only drain financial resources but also limit the time available for studying. This dual challenge, where both financial and emotional pressures converge, forces student mothers like Respondent 2 into difficult decisions about how to allocate their time and resources. The impact on academic performance is inevitable, as financial concerns consistently detract from the focus on studies as Respondent 1 explains:

"Most times, I can barely afford to pay for my child's healthcare. When my child is sick, I have to leave school early or miss lectures to attend to them. The financial burden of paying for medications, combined with the lack of financial support, makes it almost impossible to focus on my studies" (SM2)

In Respondent 4's case, the financial strain is linked to the cost of her child's education. She mentioned the difficulty of covering school fees for her children while managing her academic expenses, such as books and materials. Respondent 4 explains:

"The financial strain worsens due to the cost of school fees for my child, which makes it hard to balance everything. I often have to prioritize their education over my own" (SM4).

This reflects how financial stress is not a singular challenge but one that intersects with other facets of the student mothers' lives, creating a compounding effect that impedes both their academic and personal lives. Miller and Smith (2020)'s research, emphasizes that the financial burdens placed on student mothers often lead to academic underperformance or even dropout, as the weight of coping with education and motherhood becomes unsustainable without adequate financial support. The decision to work extra jobs or sacrifice study time is common among student mothers who are struggling financially, a trend that is evident in the experiences of the respondents at the University. Brooks (2013) highlights this phenomenon, documenting how financial strain can force student mothers into making trade-offs between their academic commitments and financial survival. For instance, Respondents 1, 2, and 4 illustrate how financial difficulties lead to diminished time for study and an increased focus on managing household expenses and childcare costs. Brooks' research supports the notion that financial challenges not only reduce the time available for academic work but also create significant psychological stress, which further hampers academic success.

Theme 4: Institutional and Structural Deficiencies

The most pressing concern raised by the respondents is the glaring lack of institutional support for student mothers at the University. This absence of formalized structures to assist these student mothers has created an environment where they are forced to navigate their academic pursuits while managing the responsibilities of motherhood, often without the necessary institutional resources to support them. A respondent revealed that the university does not provide student mothers with adequate support systems, forcing them to bring their children to class. She said:

"Unfortunately, the university does not provide us with enough support as students. We often have no choice but to bring our children to class because there aren't any options for childcare or flexible support systems that would allow us to manage both our academic and parental responsibilities effectively" (SM6)

This does not only disrupt the mothers' ability to focus and engage fully in lectures, but it also presents challenges for the other students and faculty. The mere presence of children in the lecture hall can divert the attention of the mothers, as they need to split their focus between caring for their children and keeping up with the lecture. This is not an isolated problem, as similar challenges have been documented in studies on non-traditional students, particularly mothers who struggle to juggle their dual roles without institutional support (Moreau & Kerner, 2015).

The respondent further highlighted this institutional gap by confirming that the university lacks adequate childcare facilities, not only for students but for staff as well. This points to a broader structural issue within the institution, as student mothers and staff members with children are left to manage these responsibilities without access to a reliable support system. The respondent's statement stresses that the university has not taken sufficient steps to create a more inclusive academic environment for student mothers. She stated;

"The university has done little to create an inclusive environment for student mothers. We're left to manage on our own, with no support systems for our needs. Truly speaking, I feel like we're invisible to the University. No childcare facilities, no flexible schedules, it's as if they don't expect mothers to pursue education" (SM6)

Despite the presence of a student center, which could potentially serve as a space for childcare, the facility remains underutilized or non-existent, leaving student mothers to fend for themselves. This scenario forces many

mothers to bring their children to lectures, placing additional emotional and psychological burdens on them as they struggle to maintain their academic commitments while attending to their children's needs.

The absence of support systems such as daycare facilities, flexible scheduling, or even dedicated study spaces for student mothers leaves these women in a vulnerable position. Moreau and Kerner (2015) argue that such institutional neglect is reflective of a broader issue within higher education, where non-traditional students, particularly student mothers, are often marginalized or overlooked in terms of resource allocation. This systemic oversight results in a lack of institutional policies that could ease the burden on student mothers, such as affordable on-campus daycare, flexible lecture schedules, or even the provision of financial assistance to help with childcare costs.

As a result, student mothers are forced to travel through an academic environment that is not designed to accommodate their unique needs. They are left with no choice but to manage on their own, bringing their children to class and coping with the additional strain that this imposes on their academic performance. Without a formal support system, these women face greater challenges in maintaining their academic standing, often leading to increased stress, fatigue, and, in some cases, academic failure.

The responses highlight a critical gap in the university's provision for student mothers, one that urgently needs to be addressed. The institution's inability to provide adequate support structures perpetuates an environment of exclusion for student mothers, who are left to balance the demands of education and motherhood without the resources that could significantly improve their experiences and outcomes. This calls for the need for systemic reforms in higher education institutions to accommodate non-traditional students, ensuring that student mothers are not left to struggle in isolation but are provided with the tools and support they need to thrive academically and personally.

In summary, the qualitative responses illustrate that student mothers at the University, face considerable difficulties in managing the dual responsibilities of academia and motherhood. These challenges include time management issues, emotional stress, financial strain, and a notable lack of institutional support, all of which significantly impact their academic success. Many student mothers struggle to find sufficient time to balance coursework with child-rearing duties, while financial constraints and emotional burdens, such as stress and exhaustion, further complicate their academic journey. The absence of childcare facilities and flexible academic schedules intensify these problems. This situation mirrors the findings in global studies on student mothers, which also highlight similar struggles. To address these challenges, institutions must implement reforms, such as providing on-campus childcare services, financial aid, and a more adaptable academic structure, to meet the specific needs of student mothers and enhance their chances of academic success.

4.1.2 How do Student Mothers Manage the Pressures Associated with the Mixture of Motherhood and Academic Life in the Ghanaian University?

The fact that student mothers are experiencing stressful academic journey stemming from their dual roles in the university has been strongly emphasised in the preceding paragraphs. The findings on the challenges facing student mothers set the pace for a thorough discussion on how these non-traditional students are coping. Directed by the second research question, four sub-themes were derived: Time Management and Study Patterns, Study Groups and Support Networks, and Leveraging Family and Community Support. Emotional and Spiritual Coping Mechanisms. These are discussed below:

Theme 1: Time Management and Study Patterns

A key theme among student mothers is the strategic use of time to accommodate both their academic and parental responsibilities. This group of students must often manage conflicting demands on their time, so identifying and maximizing quiet moments for studying becomes essential. A prominent pattern in their responses is the reliance on early morning or late-night study sessions when children are asleep or engaged in other activities. These are periods where distractions are minimized, allowing mothers to focus intensely on their academic work. Student Mother 1, for example, stated,

"I study at midnight or dawn because it's the only quiet time I have after managing chores, lectures, and my child's needs during the day. Despite being exhausted, I push through to keep up with my academics, though it's often difficult to focus and retain information" (SM1)

This Indicates that the quiet hour before the family wakes up provides her with the most uninterrupted time for coursework. Similarly, Student Mother 4 reported,

"I often find myself staying up late at night to study because the days are completely packed with activities. It's exhausting, but it's the only quiet time I get to focus on my academic work. Even then, the lack of sleep catches up with me, and I sometimes struggle to keep my eyes open while studying. It feels like I'm always playing catch-up, never fully able to dedicate the time I need to my studies" (SM4)

This text stresses the early hours as an ideal time to engage with academic work without the constant interruption of childcare duties. It highlights the mothers' intentional adjustment of their schedules to create undisturbed time for intellectual engagement. This proactive time management is reflective of effective strategies that help balance the dual demands of motherhood and education (Hochschild, 2012). This method of studying during non-peak hours demonstrates their adaptation to the realities of their lives as caregivers. Early mornings and late nights, typically quieter in a household with young children, allow these student mothers to maximize productivity while ensuring they still fulfill their family obligations during the day. By sacrificing sleep and leisure during these times, they prioritize their academic work without neglecting their children.

Student Mother 3, however, introduced a slightly different dimension to the time management approach. She noted:

"I start my day as early as 4:30 a.m. to take care of household chores and get time for short-term studies" (SM3).

This emphasizes the mother's ability to combine household responsibilities with academic tasks. Despite the early wake-up time and the physical exhaustion from both parenting and housework, she continues to push through and study. This strategy exemplifies a level of perseverance and resilience that is essential for student mothers who cannot afford to put off either of their primary roles. The act of pushing through tiredness to complete both domestic duties and academic tasks reflects a deep sense of responsibility and determination. As Roberts et al. (2018) suggest, resilience is a critical trait for student mothers who must continuously balance the competing pressures of caregiving and academic performance.

In addition, this approach reflects flexibility and a high level of discipline. The capacity to rise early, complete chores, and then transition to academic work requires an immense level of self-control and adaptability. Time becomes a limited resource, and these mothers skillfully divide it to maintain equilibrium between academic and family life. The choice to engage in academic tasks during the early morning reflects a keen awareness of when they are likely to be most effective in their studies.

In contrast to students without children, who may have greater flexibility in scheduling study time throughout the day, student mothers must seize these windows of opportunity whenever possible. This time management practice emphasized the broader literature on how women, especially mothers, manage the "second shift" of work at home (Hochschild, 2012). For student mothers, this second shift includes both household and academic responsibilities, making time management even more critical to their success. On top of that, these mothers' time management strategies are not only practical but also psychologically significant. By choosing to study at times when their children are less demanding, they create an environment where they can focus without the emotional strain of feeling like they are neglecting their children. This sense of control over time fosters a feeling of accomplishment and lowers stress, contributing to their overall academic performance. Time management, thus, plays a dual role: as a tool for academic success and as a coping mechanism that supports mental and emotional well-being.

Theme 2: Study Groups and Support Networks

In addition to solitary study routines, some student mothers incorporate social support strategies into their academic lives to enhance their academic performance and lessen the pressures of balancing coursework with their maternal responsibilities. One such approach is participation in study groups, where collaboration with peers offers not only academic support but also emotional and social reinforcement. For instance, Student Mother 1 shares;

I actively participate in study groups during exam periods, seeking both academic support and collaboration with peers. This strategy helps me balance my academic responsibilities with the demands of motherhood, enhancing my learning experience and keeping abreast with my missed lectures. (SM1)

Beyond facilitating a deeper understanding of course materials through collective learning, study groups enable student mothers to distribute the academic workload, making the overall demands more manageable. Study groups offer student mothers a structured form of peer support, which can significantly reduce the feelings of isolation that often come with trying to balance the roles of mother and student. According to Miller and Smith (2020), study groups are particularly beneficial for student mothers, as they create a community of learners who can empathize with one another's struggles. These groups provide an essential academic network where participants can share resources, clarify difficult concepts, and stay motivated during exam preparation. For mothers who might struggle to find time for consistent study due to household responsibilities, the accountability that comes with being part of a study group can also improve time management and focus.

The social connections formed in study groups extend beyond the academic sphere. They offer emotional support, helping student mothers cope with the stresses of balancing two demanding roles. As academic responsibilities can often feel overwhelming, particularly when coupled with the physical and emotional demands of motherhood, the ability to share one's challenges and successes with peers provides much-needed relief. By exchanging experiences and

advice, study group members foster a sense of community, which can buffer against the isolation and stress that student mothers frequently encounter (Miller & Smith, 2020).

In many ways, study groups function as informal support systems where student mothers gain not only academic insight but also emotional encouragement. These peer networks enable them to discuss common struggles such as managing time, overcoming fatigue, or coping with the pressure of deadlines, and to strategize ways to overcome these challenges. This kind of shared experience can be especially valuable when formal institutional support systems are lacking or insufficient. As research has shown, peer support networks are a critical component of success for students who face external pressures such as caregiving responsibilities (Roberts et al., 2018).

Moreover, study groups can help mitigate some of the unique challenges student mothers face, such as limited access to on-campus resources due to time constraints or childcare responsibilities. By participating in study groups, student mothers can stay connected with academic life without needing to be physically present on campus as often as their non-parenting peers. In this sense, study groups also function as a flexible resource, accommodating the needs of mothers who may not always have the freedom to attend office hours or extra tutoring sessions.

Theme 3: Leveraging Family and Community Support

Several student mothers rely on family members to ease some of their domestic responsibilities, which plays a critical role in enabling them to balance the dual demands of motherhood and academia. For example, Student Mother 5 outlined how her immediate family supports her, stating; “My mother helps manage household chores when she’s available, giving me the time and space to focus on my studies and attend classes without being overwhelmed by domestic responsibilities” (SM5). Student Mother 3 added:

My mother lives with me in my hostel. If I do not sleep for some hours after lectures, I would not be able to study in the night. Normally, after lectures, my mother takes care of my baby while I sleep. Sometimes my baby becomes very difficult to control, but my mother brings her years of experience in childcare to bear. No amount of temptation would force my mother to wake me up. This support from my mother has kept me going in my academic life as a mother (SM 3).

These examples highlight the practical and emotional importance of familial support in helping student mothers respond to their daily responsibilities. By offloading some of the household duties to trusted family members, these mothers can carve out more time to focus on their studies, thus improving their academic engagement and performance. Student Mother 4 relies more on the community:

I stay alone with my daughter at my rented apartment. Sometimes it becomes very difficult for me to attend lectures. Sometimes I leave my baby in the care of neighbours. There is a hair dresser with a number of apprentices nearby so sometimes I leave my baby behind and with the help of the apprentices, the lady takes care of my baby as I attend lectures. There is a lady who stays in a nearby apartment who sometimes also helps in a similar fashion (SM 4).

The reliance on family and trusted community members supports the Social Support Theory, which emphasizes the importance of external support systems in helping individuals manage stress and responsibilities (House, 1981). Social support, whether from family, friends, or community, acts as a buffer against the overwhelming pressures that can arise from managing multiple roles. For student mothers, family members often step in to provide much-needed relief by taking on childcare duties, assisting with household chores, or offering emotional encouragement. This network of support is vital not only for easing their workload but also for improving their mental well-being, as they can share the caregiving burden with others, reducing stress and exhaustion.

Research shows that the presence of supportive family members significantly contributes to a student mother’s ability to succeed in higher education. When family members are willing to assist with domestic duties or childcare, student mothers can concentrate more fully on their academic tasks, thus maintaining a healthier balance between their responsibilities (Roberts et al., 2018). Moreover, this form of support fosters a sense of security, allowing student mothers to know that their children are in safe hands, which in turn reduces anxiety and enables them to focus on their educational goals.

Theme 4: Emotional and Spiritual Coping Mechanisms

Balancing emotional well-being is another crucial aspect of these student mothers’ management strategies, as they respond to the challenges of both motherhood and academic responsibilities. The emotional strain of managing these two demanding roles can be overwhelming, making the cultivation of emotional resilience vital for their success. One way in which student mothers achieve this is through spiritual practices. Student Mother 3, for instance, highlights the use of spiritual tools to cope with stress, stating;

“I turn to prayer for emotional strength by joining online programs sometimes, as it helps me find peace, regain focus, and renew my energy amidst the challenges of balancing motherhood and academics. The presence of my mother alone gives me the assurance that am not alone in the struggle.



Sometimes when I am down, my mother steps in to encourage me and bring an issue that takes my mind off the struggles. It has been our practice to pray at dawn and this has really helped” (SM3)

This coping mechanism reflects the significance of spiritual and emotional support in helping these mothers manage their daily challenges. The role of spirituality in stress management is well-documented, with research showing that religious practices can provide individuals with a sense of control and comfort during difficult periods. Park (2005) argues that prayer and other spiritual activities offer individuals a way to interpret stressful situations in a more manageable way, fostering emotional stability. For student mothers, who face the pressures of academic deadlines, childcare, and household responsibilities, prayer can serve as a form of emotional release, helping them to regain focus and emotional balance when feeling overwhelmed.

Moreover, the use of spiritual practices allows student mothers to integrate their faith with their daily lives, giving them a sense of coherence between their roles as mothers and students. As spirituality provides them with a consistent source of emotional strength, it becomes an integral part of their holistic approach to balancing the competing demands of their lives (Park, 2005). This intersection between emotional resilience and spiritual practice illustrates how student mothers draw on internal and external resources to manage the pressures of their academic and maternal roles.

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusion

The study examined how Ghanaian university student mothers manage the pressures of balancing parenthood with further education. The findings demonstrate that while student mothers have interconnected institutional, financial, emotional, and intellectual challenges, they also demonstrate resilience by using a range of coping strategies. Student mothers mostly rely on personal, family, and spiritual resources to cope with the demands of college life, although these coping strategies often compensate for a lack of institutional support. These emphasize the need for more inclusive university policies and support systems that acknowledge and address the unique challenges experienced by student mothers in Ghanaian higher education.

5.2 Recommendations

One of the biggest problems faced by student mothers is time limits. As a result, universities ought to host workshops on time management and productivity that are specifically suited to the needs of student mothers. These seminars might concentrate on useful tactics including setting priorities, efficient study methods, and striking a balance between work and home duties. Additionally, another weighty obstacle to student mothers' academic success is financial difficulty. Universities should collaborate with governmental and non-governmental organizations to create focused financial support mechanisms in order to address this. These might include child care grants, need-based scholarships, tuition subsidies, and flexible on-campus jobs that permit student mothers to work without sacrificing their attendance in class. Lastly, combining parenthood with school was found to be extremely stressful on an emotional and psychological level. Therefore, counselling and mental health services should be expanded by universities in order to offer student mothers specialized support.

Declaration of Interest

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Socioeconomic and environmental determinants of Sustainable Development Goals performance in Africa

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ABSTRACT

Africa faces complex, interrelated socioeconomic and environmental challenges, resulting in uneven progress toward achieving the Sustainable Development Goals. Empirical evidence on how socioeconomic and environmental factors jointly influence SDG performance across African countries is limited. This study examines the determinants of SDG Dashboard performance using cross-country data from 54 African countries drawn from the 2025 Sustainable Development Report and the World Bank's World Development Indicators, applying descriptive statistics and ordered logistic regression, grounded in sustainable development theory. Descriptively, Central Africa shows high poverty and low female labor participation, while Eastern and Western Africa display moderate but variable poverty and employment. Regression results indicate several socioeconomic and environmental factors are significant ($p < 0.05$ and $p < 0.10$), with model fit $R^2 = 0.33$ to 0.70 . Social vulnerabilities, including poverty and child mortality, are positively associated with performance in several goals, notably SDG 4 (Quality Education), SDG 5 (Gender Equality), SDG 6 (Clean Water and Sanitation), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 17 (Partnership for Goals), reflecting the effects of targeted social interventions. Service-sector expansion and employment growth support performance in education, gender equality, energy access, decent work, and sustainable cities, aligning with SDG 4, SDG 5, SDG 7 (Affordable and Clean Energy), SDG 8 (Decent Work and Economic Growth), and SDG 11 (Sustainable Cities and Communities). In contrast, rapid financial expansion, industrial activity, energy inefficiency, and biodiversity loss constrain performance in goals where inclusiveness and environmental safeguards are weak, particularly SDG 5, SDG 10 (Reduced Inequalities), and SDG 13 (Climate Action). Overall, the results underscore that sustained SDG performance in Africa depends on a balanced integration of social inclusion, economic development, and environmental protection. The study highlights the need for strengthening social investments, including cash and food transfers; awareness campaigns, including financial and labor market participation inclusivity; and closer alignment of industrialization with environmental standards through integrated SDG planning and monitoring frameworks.

Keywords: Africa, Environmental Factors, SDG Dashboard, Socioeconomic Factors, Sustainable Development Goals

I. INTRODUCTION

The African continent is known for several complex and interrelated economic, social, and environmental challenges, such as poverty, inequality, social exclusion, sustainable infrastructure development, and climate-related challenges, making it dangerous to leave the continent to these development challenges, requiring coordinated and sustained policy responses (Akanle *et al.*, 2022). In response, the United Nations introduced the Sustainable Development Goals (SDGs) in 2015 as a comprehensive framework aimed at addressing these African challenges and advancing a more inclusive and sustainable development path by 2030 (Guillamón *et al.*, 2025; United Nations, 2023). The SDGs constitute a universal call to action to eradicate poverty, protect the environment, and promote shared prosperity, encompassing 17 interconnected goals and 169 targets that span economic development, social inclusion, environmental sustainability, and institutional governance (Guillamón *et al.*, 2025), where Sustainable development



hinges on economic growth, social inclusion, and environmental sustainability as the three major development pillars of SDGs (Akanle *et al.*, 2022).

Unlike earlier development agendas, the SDGs explicitly recognize the interdependence between economic growth, social equity, and environmental protection, emphasizing that progress in one dimension is often conditional on outcomes in others (Griggs *et al.*, 2013; Sachs, 2012; Ali *et al.*, 2025). As a result, achieving the SDGs requires not only financial and technological resources but also effective coordination among governments, private actors, civil society, and international organizations (Musah, 2024). A robust empirical understanding of the socioeconomic and environmental factors that drive SDG performance in Africa is, therefore, essential for designing policies that can generate sustained and balanced development outcomes (Ali *et al.*, 2025).

Despite strong global commitment, progress toward the SDGs has been slower than anticipated. Sachs *et al.* (2025) indicate that only 18 percent of SDG targets are currently on track, while nearly half exhibit insufficient progress, and a substantial share has regressed below 2015 baseline levels. The situation is particularly critical in Africa, where fewer than 6 percent of targets are projected to be achieved by 2030 (African Union Commission *et al.*, 2024). Moreover, SDG performance across the continent is highly uneven. Northern Africa has recorded relatively stronger outcomes in goals related to infrastructure, water and sanitation, and urban development, including SDG 2, SDG 6, SDG 9, and SDG 11. Eastern and Western Africa show mixed performance, with progress in SDG 12 and SDG 13 but persistent challenges in poverty reduction, health, and urban sustainability. Central and Southern Africa continue to lag across most goals, reflecting deep structural and institutional constraints (United Nations Development Program (UNDP), 2023; African Union, 2024).

These disparities underscore that no African country is currently on track to achieve all SDGs, while performance varies substantially across goals and regions. Despite growing descriptive evidence, there remains a limited empirical understanding of the factors that systematically drive SDG performance across African countries. In particular, how socioeconomic conditions and environmental pressures jointly shape development outcomes remains insufficiently explored in a comparative cross-country context. Addressing this gap is critical for informing policy choices and prioritizing interventions that can accelerate SDG achievement on the continent.

Monitoring SDGs achievements relies on tracking SDGs performance through measurable indicators and targets. Visualization tools such as the SDG Dashboard and SDG Trends provide a simplified overview of countries' performance across the 17 goals. The SDG Dashboard, developed as part of the global SDG monitoring framework, offers a useful tool for examining these dynamics. By classifying country performance on each goal into ordered categories ranging from major challenges to goal achievement, the dashboard captures both performance and persistent constraints in SDG implementation. This structure enables assessment of how variations in socioeconomic and environmental factors are associated with differences in SDG performance across countries.

Existing studies examining the drivers of SDG performance report mixed findings (Sachs *et al.*, 2022). While some emphasize the role of financial resources, technological capacity, and human capital in facilitating SDG achievement (Shuai *et al.*, 2021), others highlight governance quality, institutional stability, and civic engagement as central determinants, particularly in developing regions (Lella *et al.*, 2024). Conversely, conflict, economic instability, and weak institutional frameworks are frequently cited as barriers to performance. These divergent perspectives suggest that the determinants of SDG performance may not be uniform across countries or goals, reinforcing the need for context-specific empirical analysis focused on Africa. This study assesses how socioeconomic and environmental factors jointly shape SDG Dashboard performance across African countries, where the empirical analysis identifies synergies and trade-offs by examining whether the same factors generate reinforcing or opposing effects across different SDGs.

1.1 Statement of the Problem

Despite the global commitment to the SDGs, progress toward their achievement remains slow and uneven, particularly across African countries (African Union Commission *et al.*, 2024; Leal-Filho *et al.*, 2020). Yet existing assessments of SDG performance have largely remained descriptive, offering limited insight into the underlying socioeconomic factors and environmental factors, including poverty rates, health outcomes, labor participation, financial depth, energy intensity use, forest cover, and emissions that drive or constrain performance across countries and goals (UNDP, 2023; African Union, 2024). As a result, policymakers often lack clear empirical guidance on which factors matter most for improving SDG outcomes in the African context (Ali *et al.*, 2025). However, SDG outcomes may also be influenced by institutional and governance conditions, which are not explicitly included in this study.

The SDGs are designed as an integrated framework linking social inclusion, economic development, and environmental sustainability (Griggs *et al.*, 2013; Ali *et al.*, 2025). However, much of the existing literature examines these dimensions in isolation or focuses on individual goals, thereby overlooking potential interactions and trade-offs among the three pillars of sustainability (Musah, 2024; Shuai *et al.*, 2021). This fragmented approach limits understanding of how improvements in one dimension may reinforce or undermine performance in others, particularly



in regions characterized by resource constraints and structural vulnerabilities such as Africa (Akanle *et al.*, 2022; Lella *et al.*, 2024).

Moreover, cross-country comparative studies that systematically assess SDG performance across African nations remain scarce. Where such studies exist, they often rely on aggregate indices or binary measures of achievement that fail to capture the gradation of performance across different SDG categories (Guillamón *et al.*, 2025; UNDP, 2023). The SDG Dashboard, which classifies countries into ordered performance categories ranging from major challenges to goal achievement, provides a more nuanced representation of SDG performance (Sachs *et al.*, 2022). However, this tool remains underutilized in empirical analyses examining the determinants of SDG outcomes in Africa due to technical challenges associated with incorporating ordered categorical outcomes into panel-data framework studies, as its structure is suited for cross-sectional analysis.

Consequently, there is a clear empirical gap in understanding how socioeconomic and environmental factors such as poverty rates, health outcomes, labor participation, financial depth, energy intensity use, forest cover, and emissions jointly influence movement across SDG Dashboard categories among African countries (Ali *et al.*, 2025; Musah, 2024). Without such evidence, efforts to design targeted, integrated, and context-appropriate policies risk being ineffective or misaligned with the realities faced by countries at different stages of SDG implementation. Addressing this gap is essential for informing policy strategies that can accelerate progress, reduce trade-offs, and support balanced and sustainable development across the continent (Guillamón *et al.*, 2025; African Union Commission *et al.*, 2024).

1.2 Research Objective

- i) To examine the influence of social development indicators on SDG Dashboard performance across African countries.
- ii) To determine the influence of economic indicators on SDG Dashboard performance across African countries.
- iii) To assess the influence of environmental sustainability indicators on SDG Dashboard performance across African countries.

1.3 Research Hypothesis

Null Hypothesis (H₀):

- i) Social indicators do not exert a statistically significant influence on SDG Dashboard performance across African countries.
- ii) Economic indicators do not exert a statistically significant influence on SDG Dashboard performance across African countries.
- iii) Environmental sustainability indicators do not exert a statistically significant influence on SDG Dashboard performance across African countries.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1. Sustainable Development Theory

This study is anchored in Sustainable Development Theory (SDT), which emphasizes that development should meet present needs without compromising the ability of future generations to meet theirs (World Commission on Environment and Development [WCED] 1987; Sachs, 2012; Griggs *et al.*, 2013). SDT highlights the interdependence of economic growth, social inclusion, and environmental protection, asserting that performance in one dimension can reinforce or, if unmanaged, undermine outcomes in others. The SDGs operationalize this principle by promoting balanced and integrated development across social, economic, and environmental domains (Ali *et al.*, 2025). In the African context, SDT provides a framework to examine how socioeconomic and environmental factors jointly shape SDG outcomes. Social factors such as education, health, and poverty reduction are crucial for building human capital and promoting equity. Economic factors, including industrialization, financial expansion, and employment, drive growth and generate resources to support social programs. Environmental factors such as energy efficiency, biodiversity conservation, and climate adaptation sustain the natural resource base essential for long-term development (Musah, 2024; UNDP, 2023). The SDG Dashboard operationalizes SDT by categorizing countries' performance, reflecting the balance among the three pillars. Using this framework, the study examines the combined influence of socioeconomic, economic, and environmental determinants on SDG performance in Africa, highlighting that sustainable development is achieved through integrated and mutually reinforcing policies rather than isolated interventions.

2.2 Empirical Review

Empirical research on the determinants of Sustainable Development Goal performance in African countries has provided valuable insights, yet the existing literature remains fragmented and limited in scope. Ikram and Boudraa (2025) investigated the role of governance quality in advancing SDG achievement in North Africa using an integrated Grey Relational Analysis model. Their findings revealed a significant and nuanced relationship between governance effectiveness and sustainable development outcomes, with North African countries performing particularly well in goals



related to education, infrastructure, reduced inequalities, sustainable cities, responsible consumption, and institutional strength. The study highlights the importance of effective governance in channeling resources toward development priorities. However, its focus was restricted to institutional factors within a single region, overlooking the contributions of socioeconomic and environmental determinants and limiting the generalizability of the findings to the broader African context.

Similarly, Fang (2021) examined the impact of Chinese foreign direct investment on SDG outcomes across African countries using random effects and ordered probit models. The study found that FDI positively influenced performance in several goals, including affordable energy, economic growth, innovation, responsible consumption, climate action, and life on land. While these results underscore the economic dimension of SDG advancement, the analysis was limited to FDI as a single determinant, neglecting the interactive effects of social and environmental factors that are critical for sustainable development. Bajja et al. (2025) also explored the effects of transport energy consumption, trade openness, and financial development on SDG outcomes in selected African countries using the Augmented Mean Group method. Their findings demonstrated considerable heterogeneity in economic and environmental influences on SDG performance, yet the study overlooked social determinants and was confined to a subset of countries, restricting the broader applicability of the conclusions.

Collectively, these studies indicate that while governance, FDI, and selected economic and environmental factors can influence SDG outcomes, single-dimension analyses fail to capture the integrated and multidimensional nature of sustainable development. Furthermore, most studies rely on SDG Index scores or individual SDG indicators rather than the SDG Dashboard, which provides a more comprehensive and policy-relevant classification by categorizing countries according to levels of performance and remaining challenges. This study, therefore, aims to examine the economic, social, and environmental determinants of SDG Dashboard performance across African countries. Unlike prior studies that focus on single determinants or specific countries and regions, this research adopts a cross-country and multidimensional approach consistent with Sustainable Development Theory, which emphasizes the interdependence of development pillars.

2.3 Conceptual Framework

This study's conceptual framework is grounded in sustainable development, integrating economic, social, and environmental dimensions to assess SDG Dashboard performance and guide policy. Sustainable development emphasizes equitable resilience and long-term viability, employing indicators that capture performance across sectors while remaining locally relevant. The framework serves both as a diagnostic tool and a strategic guide for promoting balanced and sustainable outcomes. Economic sustainability focuses on inclusive growth, structural reforms, and resilience, providing resources for social programs. Social sustainability emphasizes equity, inclusion, and access to education, healthcare, and decent living standards. Environmental sustainability ensures the conservation of resources, protection of biodiversity, and reduction of ecological impacts. The Food and Agriculture Organization's systemic sustainability framework underpins this approach, highlighting the synergies among the three pillars, where performance in one dimension reinforces gains in others. By situating SDG Dashboard performance within this framework, the study emphasizes how socioeconomic and environmental factors jointly influence SDG attainment and underscores the need for integrated policies that balance social, economic, and environmental objectives to achieve sustainable development outcomes in African countries, addressing the gaps identified in the empirical literature by moving beyond single-factor and goal-specific, integrating all the three dimensions to capture their joint influence on a particular SDG Dashboard outcome.

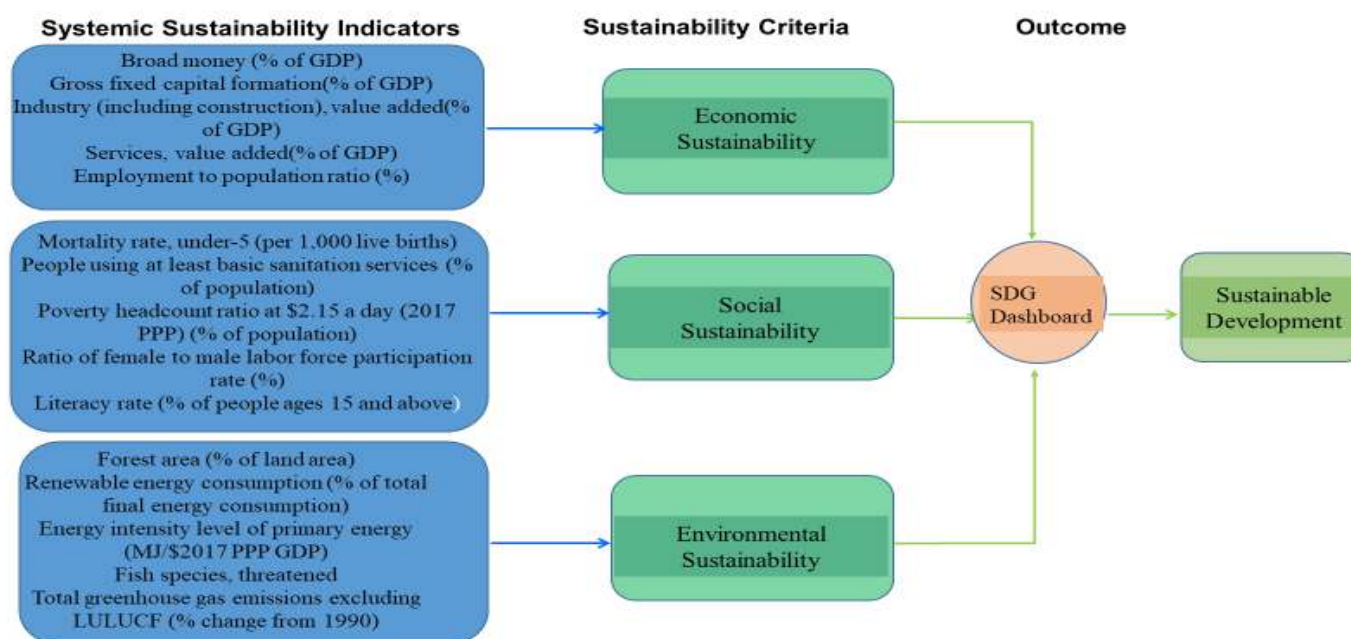


Figure 1
Conceptual Framework Based on the Notion of Sustainable Development Theory

III. METHODOLOGY

3.1 Research Design and Approach

This study employed a quantitative research design to examine the factors influencing performance on the SDGs Dashboard across African countries. The approach is explanatory, integrating descriptive and inferential statistical techniques to analyze the impact of socioeconomic and environmental determinants on SDG outcomes. Ordered logistic regression was used to accommodate the ordinal nature of the SDG Dashboard categories and to evaluate the relative contributions of the explanatory variables.

3.2 Data Sources

Data were obtained from the Sustainable Development Report 2025, which provides SDG Dashboard ratings, and the World Bank Indicator database, which offers comprehensive socioeconomic and environmental data for all UN member states. The datasets include index scores, goal-specific dashboards, trends for all 17 SDGs, and detailed metadata including units, bounds, thresholds, and indicator definitions. This study focused on the SDG Dashboard ratings and selected socioeconomic and environmental indicators for the 54 African countries. Data were accessed in Excel format, cleaned in SPSS, and analyzed using STATA version 17.

3.3 Data Preparation

Data cleaning and pre-processing for data quality were conducted to ensure reliability, accuracy, and consistency. All variables were sourced from internationally recognized databases that apply standardized data collection and validation procedures across countries. The dataset was screened for inconsistencies, implausible values, and extreme observations to account for potential reporting differences arising from variations in national statistical capacity. Missing values at the country level were imputed using the overall mean for each variable, as the proportion of missing data was low, ensuring sample size preservation. Independent variables were standardized using a z-score transformation to ensure comparability across differing scales and prevent variables with larger ranges from disproportionately influencing regression results. Potential outlier effects were examined through standardized values, and no extreme observations were identified that warranted exclusion.

The SDG Dashboard variable was recoded numerically for analysis, reflecting ordinal performance: Goal Achievement = 4, Challenges Remain = 3, Significant Challenges = 2, and Major Challenges = 1. This coding preserves the ordinal nature of the data and aligns higher values with better SDG performance and facilitates the use of ordered



logistic regression, which does not assume equal distances between outcome categories but instead estimates threshold parameters separating adjacent levels of achievement.

3.4 Sampling Technique

A census approach was employed, including all 54 African countries with available data. Countries were classified by region according to African Union and United Nations standards, which consider geographical, economic, and historical contexts. This ensures full continental coverage and allows for meaningful regional comparisons of SDG Dashboard performance.

Table 1

Classification of African Countries by Region

REGION	COUNTRY
Northern Africa	Algeria, Morocco, Libya, Tunisia, Egypt, and Sudan
Eastern Africa	South Sudan, Ethiopia, Kenya, Tanzania, Mozambique, Zambia, Somalia, Rwanda, Malawi, Seychelles, Eritrea, Djibouti, Comoros, Mauritius, Madagascar, Uganda, Burundi, and Zimbabwe
Central Africa	Chad, Cameroon, Central African Republic, Equatorial Guinea, Sao Tome and Principe, Gabon, Congo, Democratic Republic of Congo, Angola, and Congo
Western Africa	Burkina Faso, Benin, Togo, Ghana, Ivory Coast, Liberia, Sierra Leone, Guinea, Guinea-Bissau, Senegal, Nigeria, Niger, Mali, Mauritania, Cape Verde, and Gambia
Southern Africa	Namibia, Botswana, South Africa, Eswatini, and Lesotho

3.5 Variable Selection and Description

3.5.1 SDG Dashboard

The SDG dashboard was used as a dependent variable to assess countries' performance in achieving the SDGs. It provides a visual summary of performance across all 17 SDGs using a traffic light scheme: green, yellow, orange, and red (Sachs *et al.*, 2024). Green indicates goal achievement, yellow signals challenges remain, orange denotes significant challenges, and red reflects major challenges (Lafortune *et al.*, 2018). The dashboard assumes equal weighting across indicators and relies on data availability and quality.

Table 2

Sustainable Development Goals (SDGs) and their Descriptions

SDG Number	Goal	Description
SDG 1	No Poverty	No Poverty
SDG 2	Zero Hunger	Zero Hunger
SDG 3	Good Health and Well-being	Good Health and Well-being
SDG 4	Quality Education	Quality Education
SDG 5	Gender Equality	Gender Equality
SDG 6	Clean Water and Sanitation	Clean Water and Sanitation
SDG 7	Affordable and Clean Energy	Affordable and Clean Energy
SDG 8	Decent Work and Economic Growth	Decent Work and Economic Growth
SDG 9	Industry, Innovation, and Infrastructure	Industry, Innovation, and Infrastructure
SDG 10	Reduced Inequalities	Reduced Inequalities
SDG 11	Sustainable Cities and Communities	Sustainable Cities and Communities
SDG 12	Responsible Consumption and Production	Responsible Consumption and Production
SDG 13	Climate Action	Climate Action
SDG 14	Life Below Water	Life Below Water
SDG 15	Life on Land	Life on Land
SDG 16	Peace, Justice, and Strong Institutions	Peace, Justice, and Strong Institutions
SDG 17	Partnerships for the Goals	Partnerships for the Goals

3.5.2 Socioeconomic and Environmental Factor Selection

To account for the extensive set of 59 socioeconomic and environmental indicators available as independent variables, exploratory factor analysis (EFA) was employed to reduce dimensionality and guide variable selection. Indicators were categorized into social, economic, and environmental constructs based on theoretical considerations. The appropriateness of the dataset for factor analysis was evaluated using Bartlett's Test of Sphericity and the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy. Bartlett's Test was statistically significant across all constructs ($p < 0.001$), indicating sufficient inter-variable correlations, while KMO values ranged from 0.51 to 0.77, satisfying conventional thresholds for factorability. For each construct, the five indicators with the highest factor loadings were

retained, ensuring that the selected variables captured the maximum systematic variance and minimized multicollinearity, thereby providing robust predictors for subsequent econometric modeling.

3.6 Variables and Measurement

The study examines the SDG Dashboard classification as a dependent variable, with socio-economic and environmental factors as independent variables. Below (Table 3) is the summary list of the variables and the units of measurement

Table 3

Description of Dependent and Independent Variables

Category	Variable Name	Measurement / Source
Dependent Variable (SDG Achievement)	SDG Dashboard Performance	Ordinal (1-4)
Independent variables	Social Factors	
	Mortality rate, under-5 (per 1,000 live births)	Country-level under-five mortality rate (WBI)
	People using at least basic sanitation services (% of population)	Country-level percentage (WBI)
	Poverty headcount ratio at \$2.15 a day (2017 PPP) (% of population)	Country-level percentage (WBI)
	Ratio of female to male labor force participation rate (%)	Country-level ratio(WBI)
	Literacy rate (% of people ages 15 and above)	Country-level percentage (WBI)
	Economic Factors	
	Broad money (% of GDP)	Country-level percentage(WBI)
	Gross fixed capital formation(% of GDP)	Country-level percentage(WBI)
	Industry (including construction), value added(% of GDP)	Country-level percentage of industry value addition(WBI)
	Services, value added(% of GDP)	Country-level percentage (WBI)
	Employment to population ratio (%)	Country-level employment percentage (WBI)
	Environmental Factors	
	Forest area (% of land area)	Country-level percentage (WBI)
	Renewable energy consumption (% of total final energy consumption)	Country-level percentage (WBI)
	Energy intensity level of primary energy (MJ/\$2017 PPP GDP)	Country-level ratio (WBI)
	Fish species, threatened	Country-level count (WBI)
	Total greenhouse gas emissions excluding LULUCF (% change from 1990)	Country-level percentage change(WBI)

3.7 Analytical Techniques

The study employed both descriptive and inferential statistical techniques. Descriptive statistics were used to summarize and compare the distribution of socioeconomic and environmental factors. For this purpose, regional aggregation was applied, where means and standard deviations were computed to capture central tendencies and variability across countries.

For inferential analysis, an Ordered Logistic Regression (OLR) model was estimated using country-level data to test the primary hypotheses: that the selected socioeconomic and environmental factors do not significantly influence SDG dashboard performance across African countries. The OLR model is appropriate given that the proportional odds assumption holds and the ordinal nature of the dependent variable, which captures a ranked classification of SDG performance without assuming equal intervals between categories. The model specification is presented in Equation (1), where the log-odds of achieving higher SDG performance levels are modeled as a function of the selected independent variables.

The relationship between socioeconomic and environmental factors and SDG dashboard performance is modeled using an OLR, specified as follows:

$$\begin{aligned} \text{Logit}[P(\text{Dashboard Score}_i \leq j)] \\ = \alpha_j + \beta_1 \text{U5MR}_i + \beta_2 \text{Sanit}_i + \beta_3 \text{Pov}_i + \beta_4 \text{Flfp}_i + \beta_5 \text{Lit}_i + \beta_6 \text{BM}_i + \beta_7 \text{Gfcf}_i + \beta_8 \text{IndVA}_i \\ + \beta_9 \text{ServVA}_i + \beta_{10} \text{EmpPop}_i + \beta_{11} \text{ForArea}_i + \beta_{12} \text{RenEn}_i + \beta_{13} \text{EnerInt}_i + \beta_{14} \text{FishThr}_i + \beta_{15} \text{Ghg}_i \\ + \epsilon_i \end{aligned}$$

where:

$\text{Logit}[P(\text{Dashboard Score}_i \leq j)]$ denotes the log-odds of a country having an SDG dashboard score at or below category j . Since the dashboard is coded from 1 (lowest performance) to 4 (highest), $j = 1, 2, 3$. The logit transformation is defined as $\text{Logit}(p) = \ln \frac{p}{1-p}$.

α_j are the cut-points (thresholds) separating the latent continuous SDG performance variable into ordered categories. There are $j - 1$ thresholds estimated, with $\alpha_1 < \alpha_2 < \alpha_3$.

$\beta_1, \dots, \beta_{15}$ are the coefficients of interest, capturing the effect of a one-unit increase in the respective independent variable on the log-odds of being in a lower SDG dashboard category.

Independent Variables:

$U5MR_i$: Under-5 mortality rate (%), country i

$Sanit_i$: Population using at least basic sanitation services (%)

Pov_i : Poverty headcount at \$2.15/day (2017 PPP) (%)

$Flfp_i$: Female-to-male labor force participation ratio (%)

Lit_i : Literacy rate (% of population aged 15+)

BM_i : Broad money (% of GDP)

$Gfcf_i$: Gross fixed capital formation (% of GDP)

$IndVA_i$: Industry value added, including construction (% of GDP)

$ServVA_i$: Services value added (% of GDP)

$EmpPop_i$: Employment-to-population ratio (%)

$ForArea_i$: Forest area (% of land area)

$RenEn_i$: Renewable energy consumption (% of total final energy consumption)

$EnerInt_i$: Energy intensity of primary energy (MJ/\$2017 PPP GDP)

$FishThr_i$: Number of threatened fish species

Ghg_i : Total greenhouse gas emissions excluding LULUCF (% change from 1990)

ϵ_i is the error term, capturing unobserved factors influencing the SDG dashboard score

The use of this selected listed independent variables are grounded by the SDT which is explained by Hanna and Cesaretti (2019) that balancing the human population of the world to support the reduction of degrading or damaging of the global environment; use of efficient energy; decreasing poverty, improve quality of life, supporting healthy people and systems, support quality of education and support providing jobs to the youth to get equal opportunities. This will lead to eliminate unuseful ideologies and improving sustainability.

3.7.1 Model Diagnostics and Fit Tests

To ensure the robustness and validity of the OLR models, several diagnostic tests were performed. Multicollinearity among the independent variables was assessed using the Variance Inflation Factor (VIF). The average VIF was 2.37, indicating that multicollinearity was within acceptable limits and not a concern for the analysis. The goodness-of-fit of the models was evaluated using McFadden's pseudo R^2 , which measures the proportion of variation in the dependent variable explained by the model. Across the estimated specifications, pseudo R^2 values ranged from 0.33 to 0.70, reflecting moderate to strong model fit, with variation depending on the SDG under consideration. The proportional odds assumption for the ordered logistic regression models was assessed using the Brant test where the results indicated no violation of the assumption (all p-values > 0.05, equal to 1.000), confirming that the use of ordered logistic regression was appropriate. These diagnostics suggest that the selected independent variables collectively provide meaningful explanatory power for the ordinal SDG dashboard outcomes. Coefficient significance was assessed using the Wald Chi-square statistic, computed as the squared ratio of the estimated coefficient to its standard error. A p-value less than the 5 percent significance level led to the rejection of the null hypothesis. In addition, the overall model significance was evaluated using the Likelihood Ratio test, which compared the $-2 \text{ Log Likelihood}$ of the restricted model (excluding predictors) with that of the full model (including all socio-economic and environmental determinants). A statistically significant LR Chi-square statistic indicated that the included determinants jointly explain variations in SDG Dashboard performance.

Accordingly, hypothesis testing in this study relied on maximum likelihood estimation, Wald tests for individual predictors, and likelihood ratio tests for joint model significance, thereby ensuring robust inferential assessment of the determinants of SDG Dashboard performance.



IV. FINDINGS & DISCUSSION

4.1 Descriptive Statistics

Table 4 presents the descriptive statistics of socioeconomic, economic, and environmental indicators across African regions, highlighting substantial regional heterogeneity in factors influencing SDG achievement. Central Africa exhibits marked development imbalances, characterized by the highest poverty headcount (64.80%) and the lowest female-to-male labor force participation (45.46%), despite high access to basic sanitation services (82.88%). These disparities suggest that, while some social infrastructure targets SDG 6 may be relatively advanced, persistent poverty and low female participation hinder broader SDG attainment, particularly in SDG 1, SDG 5, and SDG 8.

Southern Africa demonstrates relatively balanced social and environmental performance, with higher sanitation coverage (61.75%), strong adult literacy rates (90.00%), the highest female-to-male labor force participation (84.87%), and the lowest share of threatened fish species (2.20%). This indicates that several SDGs, including SDG 4, SDG 6, SDG 14, and SDG 15, are performing more favorably in this region.

Eastern and Western Africa show moderate performance across most indicators, although Eastern Africa exhibits higher variability in poverty and employment metrics, reflecting heterogeneous development paths that may limit consistent performance across multiple SDGs. Northern Africa records moderate socioeconomic outcomes, accompanied by stronger environmental performance, including higher renewable energy consumption (65.73%) and forest area coverage (52.31%), suggesting relative advancement in SDG 7, SDG 13, and SDG 15.

At the continental level, large standard deviations across indicators reflect significant cross-country heterogeneity, highlighting the uneven nature of SDG performance in Africa. The observed patterns underscore that disparities in health, education, labor participation, investment, and environmental sustainability are likely key determinants of overall SDG achievement, providing the rationale for their inclusion in the subsequent Ordered Logistic Regression analysis.

Table 4

Descriptive Statistics of Socioeconomic and Environmental Indicators across African Regions

Indicator (Description)	Northern Africa		Eastern Africa		Southern Africa		Western Africa		Central Africa		Total (Africa)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Under-five mortality rate	61.77	28.01	48.04	23.06	40.00	3.67	68.26	28.65	24.98	13.75	53.01	27.14
People using at least basic sanitation services	35.87	20.06	43.78	25.55	61.75	18.81	37.10	18.60	82.88	23.05	46.49	25.79
Poverty headcount ratio at \$2.15/day	42.11	9.03	47.06	11.55	59.60	7.40	43.56	8.37	64.80	10.65	48.33	12.10
Female-to-male labor force participation ratio	80.67	7.48	80.56	12.4	84.87	5.27	80.01	16.53	45.46	25.11	76.92	17.95
Adult literacy rate	64.60	18.77	74.92	9.88	90.00	1.38	58.49	17.42	82.85	2.15	70.61	16.74
Forest area	52.31	26.75	21.48	16.28	13.74	13.47	26.91	24.95	12.51	19.27	26.51	24.03
Energy intensity	6.11	2.94	5.95	3.02	5.33	2.40	5.02	2.79	5.54	2.52	5.60	2.77
Renewable energy consumption	65.73	30.26	58.71	26.31	47.80	23.00	56.20	29.88	31.57	41.43	55.11	30.11
Fish species, threatened	79.22	49.35	53.82	39.63	2.20	1.92	62.94	35.43	95.17	62.35	60.57	46.12
CO ₂ emissions	4.79	1.80	4.62	0.83	3.55	1.82	4.97	0.89	4.60	1.17	4.65	1.22
Broad money	24.48	12.31	47.66	29.49	32.31	10.58	42.83	22.87	65.24	38.61	42.90	27.04
Gross fixed capital formation	21.66	8.17	18.92	6.38	22.90	5.59	23.78	7.36	25.05	11.54	21.87	7.66
Industry value added	36.23	11.73	20.05	7.79	28.24	6.32	21.87	6.25	36.09	16.54	25.83	11.27
Services value added	41.90	7.27	55.53	10.13	52.14	6.92	48.95	9.80	42.38	9.42	49.53	10.43
Employment-to-population ratio	58.34	6.62	53.36	15.65	54.54	16.30	55.34	13.95	55.14	19.61	55.08	14.12

**Table 5***Ordered Logistic Regression Coefficient Results of Social, Economic, and Environmental Indicators Across SDGs.*

Factor	SDG1	SDG4	SDG5	SDG6	SDG7	SDG8	SDG9	SDG10	SDG11	SDG12	SDG13	SDG14	SDG15	SDG17
Under-5 mortality rate	-0.024	-0.125	0.202***	-0.064	-0.093	-0.063	-0.045	-0.051	-0.014	0.001	0.057	0.104	-0.124	0.062*
Population using at least basic sanitation services	0.015	-0.130*	-0.093**	0.020	-0.123	-0.034	-0.026	0.000	-0.071**	-0.069*	-0.031	-0.193*	-0.152*	0.089**
Poverty headcount ratio at \$2.15/day	0.002	0.660**	0.352***	0.150*	-0.102	0.044	0.559**	-0.031	-0.081	-0.087	-0.140*	0.110	0.038	0.151**
Ratio of female to male labor force participation rate	-0.062	0.059	0.064	-0.007	-	-0.121*	-0.120	-0.080*	-	0.042	-0.059	0.119	-0.129	0.002
Literacy rate	0.269*	0.222	-0.018	0.142	1.629*	-0.294	0.359	0.054	0.083	0.133	-0.004	1.025*	0.189	-0.221*
Energy intensity of primary energy	-0.268	-1.032*	-0.199	-0.442	-2.046*	-0.602**	-0.737	-0.169	0.120	-0.136	0.741***	-1.922*	-1.588*	0.179
Renewable energy consumption	0.039	0.009	0.002	0.049	0.030	0.037	-0.053	-0.004	-0.001	-0.001	-0.012	0.206	0.078	-0.054
CO ₂ emissions	0.001	-0.011	0.001	0.000	-0.011	0.001	-0.002	-0.002	0.000	-0.001	-0.001	0.000	-0.042	0.012
Forest area	-0.005	-0.013	-0.038	0.005	-0.053	0.032	0.148**	-0.007	-0.020	-0.023	0.006	0.028	-0.074**	-0.023**
Fish species, threatened	0.002	0.032	-0.015	-0.003	0.061*	0.010	-0.054	0.002	0.014*	0.014	0.006	0.028	-0.074**	-0.023**
Broad money	0.022	-0.019	-0.078**	-0.014	-0.032	0.018	0.016	0.010	0.014*	0.025	0.014	-0.137	-0.007	-0.022
Gross fixed capital formation	0.023	-0.200	0.028	-0.093	-	-0.096	0.094	0.094	-	0.042	-0.084	0.030	-0.042	0.012
Industry value added	-0.028	0.046	0.093	0.020	0.227	0.041	0.103	-0.140**	0.000	0.014	-0.354***	0.539*	0.070	-0.060
Services value added	-0.062	0.451**	0.148*	0.029	0.290	0.207**	0.378	-0.218***	0.091*	0.093*	-0.183*	0.206	0.078	-0.054
Employment-to-population ratio	-0.047	0.242**	0.037	-0.078	0.221	0.088**	0.074	-0.047	0.057*	0.062*	-0.115*	0.030	-0.042	0.012

*, **, *** indicate significance at 10%, 5%, and 1% levels, respectively. Dash (–) indicates variable not applicable for that SDG



2.2 Empirical Findings

The results presented in this section are from the ordered logistic regression models, which estimate the relationship between explanatory variables and the likelihood of a country achieving a higher level of the SDG Dashboard performance. It is important to note that the coefficients present the change in the log-odds of being in a higher SDG dashboard category for a one unit increase in the independent variable, holding other factors constant, where a positive coefficient indicates that higher values of the independent variable are associated with higher odds of a greater SDG dashboard category, while a negative coefficient indicates lower odds.

4.2.1 The Influence of Social Factors on the SDG Dashboard Performance

The analysis indicates that social indicators exert significant and heterogeneous influences on the likelihood of SDG dashboard performance across African countries (Table 5). The under-five mortality rate (U5MR) shows a positive and statistically significant relationship with SDG 5 and SDG 17 ($p < 0.01$ and $p < 0.10$, respectively). This implies that an increase in U5MR raises the log-odds of the goals being classified in a higher dashboard category, suggesting that higher child mortality attracts more international aid and the adoption of gender-focused reforms in maternal health, girls' education, legal protection, and social interventions, which in turn raises the likelihood the SDG 5 and SDG 17 dashboard will move from lower to higher dashboard categories.

Access to basic sanitation services exhibits a mixed pattern. It is negatively and significantly associated with SDG 4 ($p < 0.10$), SDG 5 ($p < 0.05$), SDG 11 ($p < 0.05$), SDG 14 ($p < 0.10$), and SDG 15 ($p < 0.10$), indicating a reduced probability of upward movement in these SDGs dashboard categories for SDGs 4, 5, 11, 14, and 15. This finding suggests that sanitation alone has a limited marginal contribution to advancing these goals, highlighting the need for complementary interventions in hygiene education, menstrual hygiene management, safe and gender-responsive facilities, adequate water supply, sewerage networks, solid waste systems, effective wastewater treatment, and pollution control. Conversely, sanitation shows a positive and highly significant association with SDG 17 ($p < 0.01$), indicating that higher sanitation access increases the likelihood that the goal dashboard will move into a higher category, thereby contributing to the performance on partnership-oriented goals.

The poverty headcount ratio is positively and significantly associated with SDG 4 and SDG 5 ($p < 0.01$), SDG 6 ($p < 0.10$), and SDG 9 ($p < 0.05$). The results indicate that higher poverty levels increase the log-odds of a country being classified in a higher SDG dashboard category for goals 4, 5, 6, and 9. This may reflect that countries with higher poverty levels tend to attract targeted investments in education, gender inclusion, water and sanitation, and industrial development, thereby supporting the upward movement of the SDGs dashboard. In contrast, poverty is negatively associated with SDG 13 ($p < 0.10$), indicating that high-poverty countries reduce the likelihood of the SDG dashboard into a higher category, limiting performance in climate-related SDG.

The female-to-male labor force participation ratio is negatively associated with SDG 8 and SDG 10 ($p < 0.10$), implying that persistent gender gaps in labor market participation reduce the log-odds of being in a higher category, limiting performance in decent work and reduced inequality.

Finally, the adult literacy rate shows a positive and significant association with SDG 1, SDG 7, and SDG 14 ($p < 0.10$), reflecting that higher literacy increases the likelihood of the SDGs dashboard reaching a higher category, supporting the performance in poverty reduction, energy access, and environmental sustainability. However, literacy is negatively associated with SDG 17 ($p < 0.10$), implying the likelihood reduction of the goal dashboard into a higher category suggesting that countries with higher literacy levels may rely relatively less on aid- and assistance-based partnership indicators emphasized within SDG 17, such as finance, trade, technology transfer, policy coordination, and partnership, reducing the likelihood of upward movement in SDG 17 dashboard categories.

4.2.2 The Influence of Economic Factors on the SDG Dashboard Performance

Economic structure and labor market indicators significantly influence the likelihood of African countries' SDGs dashboard performance. The Ordered Logistic Regression results (Table 5) show that broad money has a negative and statistically significant association with SDG 5 ($p < 0.05$). This implies that an increase in broad money reduces the log-odds of SDG 5 advancing from lower to higher dashboard category, suggesting that financial deepening without gender-inclusive access may limit performance in gender equality resulting to inequality in terms of asset and collateral constraints and male biased Labour market.

Industry value added displays heterogeneous effects. It is negatively associated with SDG 10 ($p < 0.05$) and SDG 13 ($p < 0.10$), indicating that higher industrial activity reduces the likelihood of the SDG 10 and SDG 13 dashboard to higher categories, constraining performance in reducing inequality and climate-related outcomes. Conversely, industry value added is positively associated with SDG 14 ($p < 0.10$), reflecting that industrial activity increases the log-odds of the goal advancing from the lower category to a higher category, supporting performance toward higher levels of marine sustainability. These findings underscore the variable impact of industrialization across different SDG

domains through funding sustainable technologies, driving circular economy practices, and enforcing environmental standards in the marine sectors.

Services value-added exhibits predominantly positive effects. It is positively and significantly associated with SDG 4 ($p < 0.05$), SDG 5 ($p < 0.10$), SDG 7 ($p < 0.10$), SDG 8 ($p < 0.01$), and SDG 11 ($p < 0.10$), indicating that countries with stronger service sectors are more likely to advance from lower to higher SDG dashboard categories. However, service value added is negatively associated with SDG 10 ($p < 0.01$) and SDG 13 ($p < 0.10$), implying the reduction of the goals advancing to a higher category, suggesting that a dominant service sector without effective adjustment does not automatically improve outcomes related to inequality and climate sustainability.

The employment-to-population ratio is positively associated with SDG 4 ($p < 0.05$), SDG 7 ($p < 0.10$), SDG 8 ($p < 0.05$), and SDG 11 ($p < 0.05$), indicating that higher employment levels enhance the likelihood of the goals moving into a higher category making good performance in education, energy access, economic growth, and urban development. In contrast, it is negatively associated with SDG 13 ($p < 0.10$), suggesting that expanding employment may increase pressures on climate performance, reducing the probability of the goal dashboard performing at a higher level.

4.2.3 The Influence of Environmental Factors on the SDG Dashboard Performance

Environmental indicators are shown to have important and heterogeneous effects on SDG dashboard outcomes that significantly influence the likelihood of the SDGs dashboard categories (Table 5). The energy intensity of primary energy use is negatively associated with SDG 4 ($p < 0.10$), SDG 7 ($p < 0.10$), SDG 8 ($p < 0.05$), SDG 14 ($p < 0.10$), and SDG 15 ($p < 0.10$), indicating that higher energy inefficiency reduces the log-odds of the goals dashboard advancing from lower to higher categories limiting performance in education, clean energy access, economic growth, and ecosystem-related SDGs. Conversely, energy intensity exhibits a positive and statistically significant association with SDG 13 ($p < 0.10$), suggesting that energy-intensive economies increase the log-odds of the goal being more likely to achieve higher categories. This likely reflects stronger policy responses and mitigation efforts driven by elevated climate pressures.

The number of threatened fish species is negatively and significantly associated with SDG 15 and SDG 17 ($p < 0.05$), indicating lower probabilities of the goals dashboard advancing into higher categories when marine ecosystems are under threat. This highlights the direct impact of ecological degradation on SDG performance in environmental and collaborative domains.

Forest area shows a positive and statistically significant association with SDG 9 ($p < 0.05$), suggesting that countries that conserve and manage forest resources increase the log-odds to achieve higher dashboard levels of sustainable industrialization and infrastructure development through the long-term supply of raw materials. This finding indicates that strong environmental stewardship supports long-term planning, sustainable investment, and resilient industrial development aligned with SDG principles.

4.3 Discussion

4.3.1 The Influence of Social Factors on the SDG Dashboard Performance

These findings corroborate that social factors are fundamental drivers of SDG dashboard performance across African regions, although their influence varies by goal. High poverty headcount ratios and elevated under-five mortality rates are positively associated with a higher likelihood of countries being classified in a higher SDG 4, SDG 5, SDG 6, SDG 9, and SDG 17 dashboard categories, suggesting that acute social deprivation acts as a policy signal, attracting targeted public spending and donor-supported interventions in education, health, gender inclusion, water, and industrial infrastructure. These results are in line with Ndirangu (2024), who reported that increased government and international commitment to equitable health care funding, coupled with integrated social support programs, strengthens developmental outcomes and facilitates SDG achievement with a clear example of the Ethiopia's Productive Safety Net Program which combines food and cash transfers with public works to stabilize households consumption, improve access to basic services, and protect human capital, thereby supporting upward movement across the ordered SDG dashboard classifications. Regionally, Central, Southern, and West Africa, despite high poverty and child mortality rates, exhibit moderately stronger SDG dashboard performance. In Southern Africa, programs such as South Africa's Expanded Public Works Programme and Botswana's Poverty Eradication Programme link income support to labour-intensive public works and training for skill development, supporting good performance in education, employment, and gender-related issues. In West and Central Africa, initiatives such as Nigeria's National Poverty Eradication Programme, alongside donor-supported partnerships, focus on income generation, youth employment, and basic services provision, which may result in improving the SDGs performance, particularly those related to partnerships and social inclusion, translating into upward movements of SDG dashboard categories.

However, social influences on SDG dashboard performance are uneven across goals, reflecting critical sustainability trade-offs. Persistent poverty and gender disparities reduce performance in SDG 8, SDG 10, and SDG 13, lowering the likelihood of countries achieving higher dashboard categories for these goals. This aligns with the African



Development Bank Group (2016), showing that over the past years, Africa is the only region where the number of poor people has increased, with the majority living on less than \$1.25 per day, and women representing the largest share of the poor. Recent economic growth has largely failed to benefit these populations, reflecting persistent exclusion from education, decent jobs, and social services. This underscores that African countries prioritize immediate social welfare and human development needs over long-term structural and environmental investments due to resource constraints. Additionally, regions with high poverty and low female labor participation, such as the Central African Republic, continue to record weaker outcomes in inequality reduction and economic growth. These findings align with the report of the United Nations High Commissioner for Refugees (2025), which documents that the socioeconomic fragility in the Central African Republic, including widespread displacement, limited access to education and health services, and systemic gender inequalities, negatively impacts performance toward inclusive economic growth and SDG achievement.

Adult literacy emerges as a significant positive factor for SDG 1, SDG 7, and SDG 14, increasing the likelihood of countries being classified in higher dashboard categories for these goals, reflecting that higher literacy improves awareness, capacity building, and informed decision-making. These findings are consistent with Abera (2023), who argues that enhanced literacy facilitates a contextualized comprehension of the SDGs, stimulates collective and institutional action toward their realization, and supports the formation of human capital capable of sustaining long-term development interventions. Interestingly, adult literacy negatively influences SDG 17, reducing the probability of upward classification within the dashboard categories. The findings should not be interpreted as higher literacy undermines international cooperation, rather than suggesting that countries with higher literacy levels often possess stronger administrative capacity, domestic human capital, and resource mobilization systems, which may reduce reliance on traditional aid-based partnerships and shift cooperation toward self-financed development, regional integration, trade, and South–South collaboration indicating a transition away from aid dependent partnership frameworks, technology transfers and capacity buildings among countries thereby reducing upward movement in global partnership indicators.

Access to basic sanitation plays a nuanced role in SDG performance. It is negatively associated with SDG 4, SDG 5, SDG 11, SDG 14, and SDG 15 but positively associated with SDG 17, indicating differentiated effects on the likelihood of being classified in a higher SDG dashboard category. The pattern suggests that while sanitation is a foundational development input, its expansion alone is insufficient to drive broad SDG performance without complementary investments in governance, institutional capacity, gender-responsive infrastructure, urban planning, and environmental management. These findings corroborate the observations of Okesanya et al. (2024), who reported that WASH interventions yield the greatest impact on multiple SDGs when implemented in conjunction with strong institutional and governance frameworks. Their study emphasizes that effective WASH strategies in the African context require prioritization of robust financial structures, equitable allocation of funding, capacity building through targeted training across public and private sectors, and the establishment of clear regulatory and administrative frameworks with well-defined roles and responsibilities at all levels of government.

Additionally, the results align with the findings of Werku and Woldeamanuel (2025), who demonstrated that countries such as Kenya, Sao Tome and Principe, and Djibouti achieve significant SDG advancement by combining high sanitation coverage with effective governance and public health initiatives. Conversely, nations including the Central African Republic, Chad, Ethiopia, and Madagascar experience limited performance due to low sanitation access, stemming from political instability, insufficient funding, and inadequate infrastructure. These constraints particularly impede advancement toward SDG 17, which is heavily dependent on international cooperation and effective institutional mechanisms.

4.3.2 The Influence of Economic Factors on the SDG Dashboard Performance

Economic structure and labor market dynamics exhibit heterogeneous effects on SDG performance across African countries. Expansion of the services sector and higher employment-to-population ratios are positively associated with SDG 4, SDG 5, SDG 7, SDG 8, and SDG 11, increasing the likelihood of countries being classified in higher dashboard categories for these goals. This pattern suggests that service-led growth and employment creation generate income opportunities, enhance access to essential services, and strengthen urban systems, thereby facilitating multidimensional development outcomes and supporting upward movement across the ordered SDG dashboard classifications. These findings are consistent with Subramony and Rosenbaum (2024), who emphasize that service-sector expansion promotes inclusive economic growth and employment, contributing to multiple SDG targets. Similarly, the results align with Chisika and Yeom (2024), who report that investments in research and development, human capital, and infrastructure increase service value added and employment, particularly advancing social, economic, and education-related SDGs in East and Southern Africa, thereby improving the probability of being in a higher SDG dashboard category in these domains.

In contrast, financial expansion and industrialization show mixed and context-dependent effects. Broad money exhibits a negative relationship with SDG 5, reducing the likelihood of countries achieving a higher SDG 5 dashboard

category, indicating that financial deepening without gender-inclusive mechanisms may exacerbate existing inequalities. This observation corroborates Chundakkadan (2023), who argues that financial sector expansion in African contexts must be accompanied by gender-responsive policies to avoid reinforcing disparities. Likewise, industrial value added is negatively associated with SDG 10 and SDG 13, lowering the probability of upward classification in inequality reduction and climate action dashboard categories, reflecting the distributional and environmental costs of industrial growth, as noted by Ngangnchi et al. (2024), who highlight that industrialization and natural resource exploitation can undermine equitable and sustainable development outcomes. However, industrial development positively affects SDG 14, increasing the likelihood of higher classification within SDG 14 dashboard categories, indicating that a productive industrial base can support marine conservation initiatives, as evidenced in Namibia through community-managed fisheries and marine protected areas (Zhang *et al.*, 2023). Collectively, these findings highlight that economic growth alone does not guarantee balanced SDG performance and must be paired with inclusivity and environmental sensitivity.

4.3.3 The Influence of Environmental Factors on the SDG Dashboard Performance

Environmental conditions play a critical role in shaping SDG outcomes by influencing resource efficiency and ecological management. High energy intensity exhibits a negative association with SDG 4, SDG 7, SDG 8, SDG 14, and SDG 15, reducing the likelihood of countries being classified in higher dashboard categories for these goals, indicating that inefficient energy utilization constrains human capital development, economic productivity, and ecosystem sustainability. These results are consistent with Wijayarathne et al. (2016), who demonstrate that energy-efficient strategies enable simultaneous performance in clean energy provision, educational outcomes, and water access. Conversely, energy intensity is positively associated with SDG 13, increasing the probability of upward classification in the SDG 13 dashboard category, suggesting that countries with high energy consumption experience increased climate-related pressures, which in turn stimulate the implementation of stronger mitigation and adaptation policies. This observation aligns with Drakenberg et al. (2016), who report that Tanzania's adoption of climate adaptation measures and renewable energy strategies has reinforced national climate action outcomes.

Biodiversity pressures, particularly threatened fish species, negatively affect SDG 15 and SDG 17, lowering the likelihood of upward movement across these SDG dashboard classifications, indicating that biodiversity loss undermines ecosystem sustainability and the capacity for international cooperation. These findings corroborate the work of Libala et al. (2020) and Báldi & Vári (2022), who emphasize that the conservation of freshwater and marine ecosystems is essential for achieving biodiversity-related SDGs. In contrast, larger forest areas positively influence SDG 9, increasing the likelihood of being classified in higher SDG 9 dashboard categories, suggesting that sustainable natural resource management underpins industrialization and infrastructure development. This observation is in line with the Programme for the Endorsement of Forest Certification (n.d), which highlights that certified forest operations contribute to long-term economic planning and the welfare of dependent communities.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study examined the socioeconomic and environmental determinants of SDG Dashboard performance across African countries using an ordered logistic regression framework. The findings demonstrate that SDG performance in Africa is shaped by the intricate interplay of social, economic, and environmental factors, rather than being driven by any single determinant. Social vulnerabilities, such as high poverty levels and elevated under-five mortality rates, were paradoxically associated with improved performance in several SDGs, including SDG 4, SDG 5, SDG 6, SDG 9, and SDG 17. This reflects the role of targeted public interventions and external support in catalyzing performance in education, health, gender equality, industrial development, and international partnerships.

Economic factors exhibited heterogeneous effects. Service-led growth and higher employment-to-population ratios facilitated upward movements in SDG dashboards related to social and economic development, notably SDG 4, SDG 5, SDG 7, SDG 8, and SDG 11. Conversely, broad financial expansion and industrialization constrained SDG performance when inclusivity measures and environmental safeguards were weak, particularly for SDG 5, SDG 10, and SDG 13. Environmental factors further highlighted the importance of resource efficiency and conservation. High energy intensity and biodiversity loss impeded performance in SDG 7, SDG 8, SDG 14, and SDG 15, whereas effective forest management supported sustainable industrialization and infrastructure development (SDG 9).

Collectively, these results validate the Sustainable Development Theory, underscoring that balanced integration of social inclusion, economic development, and environmental protection is essential for sustained SDG performance. Imbalances among these pillars generate trade-offs, limiting advancement in interconnected SDGs, and highlight the importance of multi-dimensional and coordinated policy interventions, while also aligning with complementary perspectives from Institutional, Stakeholder, and Resource-Based theories, which do emphasize the roles of governance capacity, stakeholder coordination, and socioeconomic factors in shaping SDG outcomes.



This study faces several limitations, where some goal models did not achieve model convergence due to limited cross-country variation and the threshold-based nature of the SDG Dashboard, while the cross-sectional ordered logistic framework captures associations rather than causal pathways. Additionally, potential endogeneity arising from reverse causality between selected indicators cannot be fully addressed within the ordered logistic framework, and does not model institutional and governance effects due to the availability of data. Future results should employ the use of SDG Index score analysis and mixed methods approaches, including instrumental variables, with explicitly incorporating governance, institutional quality, and stakeholder engagement variables to better capture the dynamics and mediating mechanisms shaping SDG performance in Africa.

5.2 Recommendations

Based on the findings, the following policy recommendations are proposed: Strengthen targeted social investments, cash and food transfers, and awareness campaigns. African governments should continue prioritizing programs aimed at poverty reduction, health, education, and gender inclusion, ensuring that these interventions are strategically linked to long-term economic and environmental objectives.

Promote sustainable industrialization and environmental management: Industrial growth must be coupled with environmental safeguards, such as emission standards, to avoid undermining climate and biodiversity goals. Investments in energy efficiency and renewable energy, as exemplified by Morocco's Noor Solar Program, illustrate how energy-intensive economies can advance climate action while supporting broader development outcomes, including cutting emissions and improving energy intensity. Ensure economic inclusivity: Policies aimed at expanding financial and labor market participation must be inclusive, particularly to reduce gender disparities and income inequality. Unchecked financial deepening or sectoral growth without equity considerations can weaken performance toward SDG 5 (Gender Equality) and SDG 10 (Reduced Inequalities). Adopt integrated SDG planning and monitoring frameworks: Policymakers should move beyond sector-specific approaches and implement integrated planning mechanisms that explicitly account for trade-offs and synergies among SDGs. This ensures that performance in one dimension does not inadvertently impede outcomes in others, fostering holistic and sustainable development.

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Board diversity and investment decisions: Evidence from financial firms listed on frontier stock markets in East Africa

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ABSTRACT

The study evaluated the influence of board diversity on investment decisions using evidence from financial firms listed on frontier stock markets in East Africa. Covering the period 2017 to 2023, the research employed a balanced panel of 15 listed firms, making a total of 105 firm-year observations. Investment decisions served as the independent variable, while the proxy for independent variables included board gender diversity, nationality diversity, tenure diversity and financial expertise diversity. Control variables comprised board independence, board size, board meeting, audit quality, firm size and firm age. Grounded in agency theory and resource-based view theory, the study relied on secondary data extracted from published annual reports and audited financial statements, and adopted a fixed-effects regression model for analysis. The correlation analysis among the study variables ranged from -0.432 to 0.674, revealing weak to moderate associations which confirms the absence of multicollinearity concerns. Fixed-effects regression results indicated that gender diversity had significant negative impact on investment decisions, with beta coefficient of -0.0124 and p-value of 0.023. However, board nationality diversity ($\beta = 0.0108$, $p = 0.004$), tenure diversity ($\beta = 0.0310$, $p = 0.023$), and financial expertise diversity ($\beta = 1.7754$, $p = 0.004$) emerged as positive significant predictors. These findings confirm that certain dimensions of board diversity, particularly nationality, tenure and financial expertise, significantly shape firm investment decisions. The study recommends that listed firms in East Africa seeking to improve investment decisions should focus on strengthening board expertise, experience and international representation, while also ensuring effective integration of gender diversity within board processes. The study contributes to the understanding of the nuanced role of board composition in improving strategic financial decisions in emerging markets. Further research may focus on financial firms across Sub-Saharan Africa and conduct a comparative analysis between East Africa and West Africa to enhance generalizability.

Keywords: Board Diversity, East Africa, Investment Decision, Listed Financial Firms, Stock Markets

I. INTRODUCTION

Investment decisions play a critical role in enhancing firm performance and ensuring sustainable growth; yet, they are not the easiest decisions within a dynamic and rapid evolving market environment. Investors analyze every information available in the market that helps them to construct efficient portfolios that maximize returns through capital gains and regular income, while maintaining liquidity, safeguarding principal and minimizing tax burden (Bhalla, 2008). Despite firms' intentions to make prudent investment decisions, they often fail to attain optimal outcomes, resulting in either under-investment in value enhancing projects or over-investment in ventures that do not maximize shareholder value (Ahmad et al, 2021). In theory, investment decisions should be driven by the profitability and value creating potential of the available projects, with preference given to those maximizing shareholder wealth (Modigliani & Miller, 1958).

Numerous studies across different jurisdictions have documented a significant relationship between investment decisions and various determinants, including information asymmetry (Ahmad et al., 2021; Khan et al, 2025), financial restrictions (Abdeljawad et al, 2024; Fazzari et al, 1988; Kumar & Ranjani, 2018), political insecurity (Chen et al, 2011; Jens, 2017), agency conflict (Jensen & Meckling, 1976; Mclean et al, 2012; Yadav & Yadav, 2024) and ownership structure (Boycko et al, 1996; McConnell & Servaes, 1990; Tayachi et al, 2023). Previous research highlights the role of corporate governance quality on investment decisions (Chakraborty et al., 2023; Samani et al., 2025). However, many of these studies primarily emphasize on broad governance mechanisms and assume relatively uniform institutional environments, thereby overlooking specific board attributes that may differentially influence investment decisions.

Since the beginning of the 21st century, board diversity has attracted considerable scholarly and policy attention as an important aspect of effective corporate governance (Ali et al., 2021; Fidanoski et al, 2014; Mirza et al, 2020). As noted by Stein (2003), distortions in corporate investment policies largely arise from agency problems and

financing constraints. As the principal decision-making body, the board of directors functions as the central hub for strategic deliberations and oversight (Estélyi & Nisar, 2016). This perspective is attributed to the argument that the board of directors functions as a collective organ whose members contribute diverse skills, competencies and experience that strengthen the overall board's capacity to make informed and effective decisions (Knippenberg & Schippers, 2007). Integrating the contributions of the diverse talents, experience and background of the board of directors facilitates a more thorough review of challenges, stimulates challenging questions, and enhances vigorous discussion within the senior management team. Importantly, the collective decision-making role suggests that board diversity may influence investment decisions indirectly by mitigating agency conflicts.

A multifaceted understanding of issues can transform boardroom dynamics and is likely to yield superior outcomes compared to those made in a groupthink environment (Li & He, 2023; Mannix & Neale, 2005; Marcel et al, 2011; Miller & Triana, 2009), which may lead to business failure and ruins the entire governance process (Siciliano, 1996). In retaliation to major corporate scandals such as Parmalat in Italy, HIH in Australia, Enron, and WorldCom in the United States, both policymakers and practitioners have pushed for increased diversity among board members.

Extant research has linked board diversity and varied performance outcomes, such as board diversity and firm efficiency (Ali et al., 2021; Ullah et al, 2021), firm performance and board diversity (Fernández-Temprano & Tejerina-Gaite, 2020; Khan et al., 2025; Shehata et al., 2017), financial performance and board diversity (Hosny & Elgharbawy, 2022; Vafaei et al, 2015), and board diversity and innovation (Chen et al, 2023; Makkonen, 2022). The influence of board diversity on corporate investment decisions (Ali et al., 2022; Harjoto et al, 2018; Mirza et al., 2020). However, in Africa, there is little evidence that explains the relationship between board diversity and investment decisions.

Despite their scarcity, most of these studies have inadequately examined the multiple aspects of board diversity, focusing primarily on a restricted set of attributes such as age, gender, tenure, and educational background. Moreover, the role of board of directors differs between developed economies and emerging economies due to institutional disparities, weaker regulatory enforcement, limited stakeholder and legal protection, and concentrated ownership structures (Halkos & Skouloudis, 2016; Lock and Seele, 2016; Ntim et al, 2019). These variations are likely to influence board directors' decisions (Khan et al., 2025). In the context of sub-Saharan Africa and particularly in East Africa, firms continue to experience investment challenges such as low private sector investment and limited access to long-term capital, which may be intensified by limited board diversity. In the light of these deficiencies in governance, ethical standards and legal frameworks, firms in emerging economies are generally perceived as underperforming, and the economies of the East African Community (EAC) are no exception to this trend. Thus, undertaking a study in a specific setting is highly significant for deepening the understanding of board diversity and its influence on corporate investment decisions. Therefore, this study aims to examine the influence of board diversity on investment decisions of firms listed on East Africa's stock exchange markets. It essentially explores how board diversity aspects such as gender, tenure, financial expertise and nationality influence investment decisions as suggested by the dependence theory (Ali et al., 2022; Carter et al, 2010; Wernerfelt, 1984).

This study contributes to the body of existing literature in several ways. First, the study provides the first empirical evidence from East African capital markets linking board diversity to corporate investment decisions. While the relationship between corporate governance structures and firm performance has been explored across several settings and contexts, the literature presents mixed perspectives on the association between firm performance and corporate governance mechanisms (Abdeljawad et al., 2024; Fazzari et al., 1988; Kumar & Ranjani, 2018; Magoma et al, 2024). Second, it advances the existing body of knowledge by demonstrating how multiple board characteristics jointly shape investment behavior.

1.1 Research Objective

- i. To examine the effect of board gender diversity on the firm's investment decisions
- ii. To examine the effect of board nationality diversity on the firm's investment decisions
- iii. To examine the effect of board tenure diversity on the firm's investment decisions
- iv. To examine the effect of board financial expertise diversity on the firm's investment decisions

II. LITERATURE REVIEW

2.1 Theoretical Review

The relationship between investment decisions and the board is intricate and continuously changing, and cannot be fully explained by any specific corporate governance theory (Pugliese et al., 2014). Consequently, agency theory and resource-based view (RBV) theory were adopted in the literature review and in the development of research hypotheses to explain the link between firm investment decisions and board diversity.

2.1.1 Agency Theory

Agency theory, as developed by Jensen and Meckling in 1976 seeks to explain the relationship between a firm's managers (agents) and its owners (principals). In this framework, managers are expected to uphold shareholders' interests by making decisions that maximize firm's value (Jensen & Meckling, 1976). However, as Eisenhardt (1989) notes, the key assumption of this theory is that individuals are rational and self-interested, and that information asymmetry exists between principals and agents. It is common for managers to engage in opportunistic behavior, such as empire building, by taking advantage of the firm's resources or allocating their efforts in an inadequate manner that is not always in the shareholders' best interests. The central role played by the board of directors, which represents shareholders, is to monitor managers' decisions by stimulating transparency, accountability and ensuring they adhere to ethical standards and best practices. The research concerned with the linkage between a company's investment decisions and agency includes (Jensen, 1986) and (Myers & Majluf, 1984). These studies conclude that an agency conflict arises when the agent prioritizes personal interests over the interest of the principal. However, the key weakness of this theory is that it over-emphasizes self-interest and opportunism while neglecting the roles of trust and cooperation.

2.1.2 Resources-Based View (RBV) Theory

The RBV theory was founded by Wernerfelt in 1984 and further refined by Barney in 1991, advocates that a firm functions as a system largely independent of external environmental settings. The main assumption of this theory is that resources are imperfectly mobile across companies, and that a company's competitive advantage is primarily driven by its unique resources. However, the theory does not provide guidance on how these resources are developed or renewed. It is argued that corporate board should ensure managers receive support across different areas to mitigate uncertainties arising from external environment (Magoma & Ernest, 2023). RBV theory focuses more on a company's internal weaknesses and strengths than external opportunities and threats (Lockett et al, 2009). A company's performance is influenced by key resources possessed by board members, including their experience, background and cognitive capabilities (Kyaw et al, 2017). These qualities shape the board's daily responsibilities and strengthen the corporate governance system in pursuit of strategic goals (Aguilera et al, 2006; Agyei-Mensah, 2023). The achievement of a firm largely dependent on the board's abilities, as directors hold primary responsibility. From the RBV perspective, the board's expertise can serve as a strategic asset, providing the firm with a competitive advantage.

2.2 Empirical Review

2.2.1 Investment Decision

From a firm's viewpoint, a cash outlay is considered as an investment of corporate resources intended to generate future cash inflows. Investment decisions primarily entail financial choices regarding the firm's non-current assets. Provided resource constraint, capital budgeting is necessary to allocate resources among competing investment opportunities (Waheed & Malik, 2019). Ideally, management should prioritize projects with positive net present values (NPVs) rather than being influenced solely by internally generated cash flows (Modigliani & Miller, 1958). On the contrary, sub-optimal investment decisions arise when managers indulge in overinvestment or underinvestment (Bimo et al, 2022). In overinvesting, managers undertake negative NPV projects or allocate resources exceeding the optimal level, whereas underinvestment occurs when managers ignore positive NPV projects or invest below the optimal value (Biddle et al, 2009).

Sub-optimal decisions can be interpreted in two ways. First, such decision is a reflection of agency problem, where managers, motivated by personal benefits, engage in empire building by investing in projects regardless of their growth opportunities (He et al, 2019; Jensen, 1986). When managerial goals diverge from those of shareholders, surplus internal cash generated in excess of what is required to maintain existing assets and finance new positive NPV projects increases the risk of inefficient resource allocation (Richardson, 2006). This behavior often contradicts the objective of maximizing shareholder value (Jensen & Meckling, 1976). Second, sub-optimal investment decision highlights capital market imperfections, whereby costly external financing makes internally generated cash flows instrumental in expanding a firm's available investment opportunities (Fazzari et al., 1988; Fee et al., 2009; Hubbard, 1998). This highlights that the quality of managerial investment decisions is affected by both competence and underlying motives, with agency conflicts possibly undermining investment efficiency (Byrd et al., 1998).

Prior studies have indicated that corporate governance mechanism is a broadly useful tool to moderate agency costs besides aligning management and owners' interests (Jensen, 1993). This chore is typically accomplished in a boardroom, where the board endorses managerial decisions and monitors their implementation. Shareholders appoint the board of directors as their representative to ensure sound investment decisions that support the firm's goal of value maximization and reduce agency costs (Mirza et al., 2020).

2.2.2 Board Diversity and Investment Decisions

Research on corporate governance constantly underscores the need of fostering diversity in boardrooms, emphasizing the necessity for an extensive range of demographics and personality types among board members (Milliken & Martins, 1996). Such diversities facilitate each director to contribute to the firm's success by exploiting their unique knowledge, features and abilities (Knippenberg & Schippers, 2007). Since some managers may exhibit opportunistic behavior, a diverse board is better positioned to monitoring such conduct and oversee managerial activities. Previous studies have attested that investment decisions are influenced by a diversified board of directors (Ali et al., 2022; Khan et al., 2025; Mirza et al., 2020; Tingbani et al, 2020). However, most of these studies focused on limited diversity attributes, without fully exploiting the broader range of board diversity variables.

2.2.3 Board Gender Diversity and Investment Decisions

Tingbani et al. (2020) argued that increasing the presence of women on boards introduces new perspective to both decision-making process and corporate governance. Proponents of agency theory maintain that greater female representation on boards reduces agency costs and enhances board efficiency by contributing distinct skills necessary for intricate decision making that are critical to a firm's long term sustainability (Coles et al, 2008; Mori, 2014). However, previous research shows inconclusive results on the impact of gender diversity on firm performance. Some studies suggest that females are more conservative in nature and risk-averse, which may decrease their confidence in investment decisions (Dwyer et al, 2002; Graham et al, 2002; Shin et al, 2020). Loukil and Yousfi (2016) argue that women are often risk-averse, and their involvement on boards has almost no impact on the board's willingness to undertake strategic risks. Yu (2023) Finds that firms with female directors exhibit significantly higher investment efficiency compared to those without. Ali et al. (2022) Claim a negative relationship between gender disparity and investment decisions, while Eklund et al. (2009) report that increased gender diversity can be detrimental to a firm's survival. A few researchers find no significant correlation between gender diversity and corporate investments (Harjoto et al., 2018). Overall, empirical evidence emphasizes that female board members often exhibit risk averse attitude, which may lead boards with higher female representation to make more cautious investment decisions. Thus, we hypothesize:

H₁: Board gender diversity reduces the level of the firm's investment

2.2.4 Board Nationality Diversity and Investment Decisions

RBV theory holds that the inclusion of foreign board members in the boardroom improves its effectiveness by allowing skill sharing, exchanging diverse experiences, and linking the firm to international networks, thereby introducing novel perspectives and alternative ways of addressing challenges. Oxelheim et al (2013) suggest that foreign board members are beneficial to the company as they expose the company to new international experience and access to global opportunities and support internationalization. Their presence presents such a useful strategy to enhance competitiveness in a globalized market, improve firm value and transfer corporate governance practices between nations (Handa, 2020; Miletkov et al, 2017; Oxelheim et al., 2013). Agency theorists profoundly promote the inclusion of foreigners on the board, believing that their attendance improves the oversight of shareholders' interests and resources (Fama & Jensen, 1983). Accordingly, the presence of foreign nationals on the corporate board promotes independence of the board and contribute to improved performance and good governance (Estélyi & Nisar, 2016; Ruigrok et al, 2007).

However, empirical evidence provides conflicting results on the impact of board nationality diversity on firm investment decisions. For instance, Mirza et al. (2020) claim that the presence of foreign nationals on the board has significant positive influence on investment decisions. Similarly, researchers such as Joenoes and Rokhim, (2019), Ruigrok and Kaczmarek (2013) find that nationality diversity in the boardroom enhances company's performance. Conversely, other scholars find that a firm's performance may deteriorate when foreign nationals participate in the corporate board (Bekiaris, 2021; Magoma et al., 2024). Some research suggests no significant relationship between director's nationality diversity and firm performance (Darmadi, 2011; Rose, 2007). Masulis et al, (2012) further highlight that foreign independent directors often exhibit poor attendance at board meetings, which is associated with inadequate firm performance and reduced CEO turnover sensitivity. They further note that firms with foreign independent directors tend to underperform relative to peers in the same region. Based on this evidence, we expect that a high proportion of foreign national directors on the board is ineffective due absenteeism. Such absenteeism either reduces pressure on CEOs to undertake value enhancing projects, leading to underinvestment, or make boards more risk-averse in approving significant investments due to ineffective deliberation and engagement by foreign independent directors. Therefore, we propose the following hypothesis:

H₂: Board nationality diversity reduces the level of the firm's investment

2.2.5 Board Tenure Diversity and Investment Decisions

The agenda of directors' tenure has gained considerable attention in the globe and increasingly documented within the agency theory as an emerging critical governance factor. Vafeas (2003) investigated on the association between director's independence and the length of their tenure, emphasizing that the quality of director is closely tied to board tenure. However, existing literature shows conflicting conclusions on the nature and direction of this relationship. Huang and Hilary (2018) suggest that directors with longer tenure become more familiar with the firm's business environment and are more actively engaged in daily activities. On the other hand, another viewpoint argue that long-term serving director may become familiar with firm's management, risking isolation of key information from other board members and creating communication barrier. Reguera-Alvarado and Bravo (2017) observe that independent directors with an extensive period of time become entrenched and aligned with managers and are therefore unable to monitor them adequately. Bebchuk et al, (2002) argue that directors with longer serving tenure are more critical compared to new directors. Though, a board with just a few years of experience will likely face fewer governance issues and may possess a limited comprehension of the firm's operations and history, thus undermining its monitoring and advisory effectiveness (Huang & Hilary, 2018). Moreover, James et al, (2021) show that younger or newly appointed directors bring basic knowledge and external experience, but they frequently lack the practical knowledge specific to the firm, which can only be acquired with time and immersion. Fun et al, (2023) suggest that directors require five to nine years of service tenure to acquire adequate experience and function effectively. Meanwhile, McIntyre et al (2007) suggest that the optimal board tenure is approximately 12 years.

Extant literature has shown a positive impact of the director's extended tenure and firm performance in various outcomes (Fun et al., 2023; Khan et al., 2025; Lun et al, 2025; Sohail et al, 2023; Tingbani et al., 2020). Fun et al. (2023) and Mirza et al. (2020) reveal that the association between board tenure and firm's investment decisions is positive. Chamberlain (2010) reports a nonlinear relationship between board tenure and firm performance, but with an overall positive correlation. Firm performance tends to increase during the early years of director's tenure, but starts declining as tenure extends and directors accumulate more experience. Vafeas (2003) suggest that a long-serving director decreases firm performance because they establish friendships with managers that influence the monitoring role of the daily operations. Additionally, firms with high diversity of directors serving tenure in the boardroom will reduce cooperation, cohesion, coordination, and sharing of information, which affects group performance negatively (Milliken & Martins, 1996). Low levels of coordination, cooperation and persistent information asymmetry may undermine board's capacity to effectively oversee investment activities of managers (Ali et al., 2022). Based on these arguments, it is evident that longer director tenure improves board's monitoring effectiveness and discourages managers' opportunistic tendency towards overinvestment. Consequently, we expect that a higher proportion of experienced directors on the board decreases the attitude of empire-building and promote more efficient investment decisions. Thus, we develop a hypothesis as follows.

H₃: Board tenure diversity increases the level of the firm's investment

2.2.6 Board Financial Expertise Diversity and Investment Decisions

Drawing on the human capital and resource dependency theories, training and education strengthen employees' knowledge and skills, thereby facilitating them to contribute more effectively to the achievement of firm objectives. Simons et al (1999) further argue that educational diversity improves firm performance. According to agency theory, directors need to demonstrate financial literacy and requisite skills to proficiently oversee and manage company's operations. Individuals tend to make more informed decisions if they have access to financial information (Rossi et al., 2020). Bianchi (2018) reports that individuals with high level of financial literacy tend manage investment portfolios more efficiently, resulting to greater experience in generating investment income and higher annual returns. Additionally, directors with financial expertise are more adept at detecting and reducing managerial distortion of financial results, as their understanding of financial reporting standards provides them requisite knowledge to scrutinize and comprehend the reports prepared by management (Githaiga et al, 2023). Bertrand and Schoar (2003) maintain that as the level of education increases, the director's risk-taking propensity also increases. Similarly, Rasool and Ullah (2020) suggest that investor biases decrease with increasing financial literacy. From these arguments, we suggest that director financial literacy improves the board's monitoring role. Thus, we expect that a board with greater financial expertise diversity will increase investment level and eliminate the tendency towards empire-building. We therefore hypothesis:

H₄: Board financial expertise diversity increases the level of the firm's investment

III. METHODOLOGY

3.1 Research Design

The study employed quantitative research design using secondary panel data gathered from the annual reports and audited financial statements of 15 financial firms listed in East Africa. Following Magoma and Ernest (2023), the non-financial sector was excluded, as financial firms possess unique accounting and financial features, making them subject to distinctive governance structures and additional regulatory requirements imposed by the central bank. The study employed secondary data from financial reports and audited financial statements of financial firms listed in Kenya, Tanzania, and Uganda over a six-year period from 2017 to 2022. The rationale behind selecting the 2017–2023 timeframe is rooted in data accessibility, economic dynamics, and relevance to contemporary issues in corporate governance studies.

Table 1

Study Variable Measurement and Operationalisation

Variables	Acronym	Variable type	Measurement	Previous studies	Source
Investment decision	INVD	Response (RV)	Capital expenditure scaled by lagged total assets.	(Ali et al., 2022; Mirza et al., 2020)	Financial statements
Board gender diversity	GD	Explanatory (EV)	The ratio of female directors to total directors on the board.	(Erhardt et al., 2003; Magoma and Ernest, 2023; Mirza et al., 2020)	Annual reports
Board nationality Diversity	ND	Explanatory (EV)	The ratio of foreign directors to total directors on the board.	(Assenga et al., 2018; Darmadi, 2011; Mirza et al., 2020)	Annual reports
Board tenure diversity	TD	Explanatory (EV)	Average of the length of time, stated in years, that the directors have been on the board.	(Gallego-Álvarez and Rodríguez-Domínguez, 2025; Mirza and Malik, 2019; Tejerina-Gaite and Fernández-Temprano, 2021)	Annual reports
Board financial expertise and diversity	FED	Explanatory (EV)	The ratio of directors with accounting and finance knowledge to the total directors on the board.	(Magoma et al., 2024) Gallego-Álvarez & Rodríguez-Domínguez, 2025)	Annual reports
Board independency	IND	Control (BCV)	The proportion of independent directors to the total number of board members	(Huynh, 2022; Ismail et al., 2024) Mirza & Malik (2019)	Annual reports
Board Size	BS	Control (BCV)	Number of Directors on Board	(Coleman & Wu, 2021; Ismail et al., 2024)	Annual reports
Board meeting	BM	Control (BCV)	Number of board meetings conducted in a year	(Bawuah, 2024; Roziq & Ilma Ahmad, 2024)	Annual reports
Audit quality	BIG4	Control (BCV)	Calculated by dummy measurement, “1” if the annual report is audited by any one of the Big Four auditor firms in a particular year, and “0” otherwise	(Ismail et al., 2024; Sarhan et al., 2019)	Financial reports
Firm size	FS	Control (FCV)	The natural logarithm of a listed financial firm’s total assets	(Magoma et al., 2024; Magoma et al., 2022)	Financial statements
Firm age	FA	Control (FCV)	The natural log of the For years, the firms have been registered on the stock exchange	(Idris and A, 2021; Ismail et al., 2024)	Financial statements

3.2 Regression Model

Drawing on the nature and dataset structure, the study employed the following linear model to examine the influence of board members' diversity on investment decisions, regressing each diversity variable on the firm's investment efficiency indicator. The selection between the fixed-effects model and the random-effects model is based on the Hausman test of validity (Hausman, 1978). The model has been specified as follows:

$$INVD_{it} = \beta_0 + \beta_1 EV_{it} + \beta_2 BCV_{it} + \beta_3 FCV_{it} + \varepsilon_{it} \dots \dots \dots (1)$$

Whereby the INVD represents the response variable (investment decisions) measured as the beginning year capital expenditure of the i_{th} firm at year t , scaled by lagged total assets. The explanatory variables (EVs) are the board diversity in gender, nationality, tenure and financial expertise. Lastly, the control variables are classified into two categories. The first category is the board control variables (BCVs) represented by board independence, board size, board meeting and audit quality. The other category is the firm control variables, explained by firm size and firm age.

IV. FINDINGS & DISCUSSION

4.1 Descriptive statistics

The descriptive statistics analysis provides a summary of investment decisions (INVD), board gender diversity (GD), board nationality diversity (ND), board tenure diversity (TD), board financial expertise diversity (FED), board independent (IND), board size (BS), board meeting (BM), audit quality (BIG4), firms size (FS) and firm age (FA). The summary presents key measures including mean, standard deviation, minimum and maximum values, skewness and kurtosis

Table 1
Descriptive Statistics

	INVD	GD	ND	TD	FED	IND	BS	BM	BIG4	FS	FA
	Stats	Stats	Stats	Stats	Stats	Stats	Stats	Stats	Stats	Stats	Stats
N	105	105	105	105	105	105	105	105	105	105	105
Mean	0.960	0.282	0.195	5.994	0.503	0.514	11.952	6.066	0.961	13.612	3.917
SD	0.172	0.130	0.137	2.372	0.133	0.212	4.462	2.873	0.192	1.3018	0.626
Min	0.726	0.060	0.000	1.833	0.153	0.080	5.000	4.000	0.000	10.881	2.197
Max	2.184	0.550	0.555	14.416	0.727	1.000	26.000	16.000	1.000	16.404	4.844
Skewness	3.941	0.128	0.310	1.139	-0.734	-0.430	1.672	1.394	-4.825	0.1830	-0.692
Kurtosis	26.557	1.927	2.719	4.617	3.114	2.604	5.646	4.160	24.289	2.731	3.245

Table 2 above indicates the descriptive statistics for the 105 observations. Investment decisions (INVD) had a mean of 0.960 and standard deviation of 0.172, with a wider range from 0.726 to 2.184. Board diversity variables including gender (GD), nationality (ND), tenure (TD) and financial expertise (FED) reported mean values of 0.282, 0.195, 5.994 and 0.503 respectively with varying ranges and standard deviations. Other variables such as board independence (IND), board size (BS) and board meeting (BM) had mean value of 0.514, 11.952, and 6.066, while audit quality (BIG4), firm size (FS) and firm age (FA) had mean values of 0.961, 13.612 and 3.917 respectively. On the other hand, Kurtosis analysis indicates leptokurtic distribution for investment decisions (INVD), tenure diversity (TD), board size (BS), board meeting (BM), audit quality (BIG4) and firm age (FA). Furthermore, platykurtic kurtosis distribution are observed for board gender diversity (GD), board nationality diversity (ND), board financial expertise diversity (FED), board independent (IND) and firm size (FS). The Gaussian normal distribution states that normally distributed data has a skewness value of 0. From table 2 above board nationality diversity (ND), board tenure diversity (TD), board financial expertise diversity (FED), board independent (IND), audit quality (BIG4) and firm age (FA) revealed to be negatively skewed, implying an asymmetrical distribution while the rest are positively skewed. These descriptive summaries provide an overview of the data serving as a foundation for further analysis and modelling.

4.2 Correlation Analysis

Table 3 presents the Pearson correlation analysis, asserting the relationship between investment decisions (INVD), board gender diversity (GD), board nationality diversity (ND), board tenure diversity (TD), board financial expertise diversity (FED), board independent (IND), board size (BS), board meeting (BM), audit quality (BIG4), firms size (FS) and firm age (FA). Since the correlation coefficients of the study variables range from -0.432 to 0.674, is an indication that multicollinearity is not a concern, as all the values are below the commonly accepted threshold of 0.8.

Table 2
Correlation Analysis

	INVD	GD	ND	TD	FED	IND	BS	BM	BIG4	FS	FA
INVD	1										
GD	-0.101	1									
ND	-0.002	-0.230*	1								
TD	-0.094	-0.173	-0.348*	1							
FED	0.072	0.021	0.203*	-0.200*	1						
IND	0.037	0.223*	0.299*	-0.428*	0.509*	1					
BS	-0.131	-0.256*	-0.432*	0.674*	-0.329*	-0.399*	1				
BM	0.110	0.059	-0.209*	-0.173	0.008	-0.191*	-0.065	1			
BIG4	0.140	0.156	-0.320*	0.211*	0.207*	-0.060	0.165	0.143	1		
FS	0.120	-0.268*	0.399*	-0.272*	0.152	0.001	-0.114	0.294*	-0.148	1	
FA	0.043	-0.088	-0.166	-0.101	0.007	0.229*	0.091	0.167	-0.028	-0.273*	1

Key: *Correlation is significant at the 0.05 level

The correlation analysis shown in table 3 above revealed that investment decisions (INVD) shows a weak correlation with board gender diversity (GD), board nationality diversity (ND), board tenure diversity (TD), board financial expertise diversity (FED), board independent (IND), board size (BS), board meeting (BM), audit quality (BIG4), firms size (FS) and firm age (FA) by -0.10, -0.002, -0.094, 0.072, 0.037, -0.131, 0.110, 0.14, 0.120 and 0.043 respectively. board gender diversity correlates weakly with board nationality diversity, board tenure diversity, board financial expertise diversity, board independence, board size, board meeting, audit quality, firm size and firm age by -0.230, -0.173, 0.021, 0.223, -0.256, 0.059, -0.268 and -0.088, respectively. Board nationality diversity correlates with board tenure diversity, board financial expertise diversity, board independence, board size, board meeting, audit quality, firm size and firm age by -0.348, 0.203, 0.299, -0.432, -0.209, -0.320, 0.399 and -0.166, respectively. Board tenure diversity correlates with board financial expertise diversity, board independence, board size, board meeting, audit quality, firm size and firm age by -0.200, -0.428, 0.674, -0.173, 0.211, -0.272 and -0.101, respectively. Board financial expertise diversity is weakly related to board independence, board size, board meeting, audit quality, firm size and firm age by 0.509, -0.329, 0.008, 0.207, 0.152 and 0.007, respectively. Board independence is weakly related to board size, board meeting, audit quality, firm size and firm age by -0.399, -0.191, -0.060, 0.001 and 0.229, respectively. Board size is correlated with board meeting, audit quality, firm size and firm age by -0.065, 0.165, -0.114 and 0.09, respectively. Board meeting is weakly related to audit quality, firm size and firm age by 0.143, 0.294 and 0.167, respectively. Audit quality has a weak relationship with firm size and firm age of -0.148 and -0.028, respectively, while firm size and firm age are related by -0.273.

4.3 Autocorrelation Result

An autocorrelation test was done by using the Durbin-Watson test. The test reported a d-statistic value of 2.025, which falls between 1.5 and 2.5, indicating the absence of autocorrelation in the dataset (Magoma et al., 2024). Generally, a Durbin-Watson d-statistic within this range suggest that autocorrelation is not present. Thus, the study is study is considered free from autocorrelation concerns.

4.4 Regression results

4.4.1 Model Selection Test for First Model

The research adopted the Hausman test to determine whether the fixed effects or random effects model was more appropriate for the analysis. A statistically significant Hausman test results indicates a preference for the fixed effects model, while an insignificant result favors the use of the random effects model.

Table 4
Hausman Test for the Model

	Model
Chi2(6)	23.81
P-Value	0.0046

Test: Ho: Not systematic in the coefficients difference

The Hausman test in Table 4 above indicates that the Chi-square p-value is less than 0.05 significance level, suggesting that the difference in coefficients is systematic and statistically significant. Thus, the null hypothesis is rejected and the fixed effects model is preferred over the random effects model. Therefore, the study adopted the fixed effects model for subsequent analysis.

4.4.2 Model Estimation Results for First Model

Table 5 below shows the fixed effects regression result, revealing the relationship between board diversity and investment decision. The results indicate that gender diversity is significant and negatively related to investment decisions. While board nationality diversity and board tenure diversity show a significant positive relationship with investment decision.

Table 5

Relationship between Board Diversity and Investment Decisions

INVD	Coef.	Std. Err.	t	P>t
GD	-0.01240	0.00536	-2.31	0.023
ND	0.01078	0.00517	2.08	0.004
TD	0.03095	0.01325	2.34	0.023
FED	1.77540	0.60114	2.95	0.004
IND	0.01604	0.01036	1.55	0.125
BS	0.03009	0.01326	2.27	0.027
BM	0.52765	0.35867	1.47	0.145
BIG4	-0.04125	0.09044	-0.46	0.657
FS	18.31282	9.05001	2.02	0.046
FA	0.70802	1.05463	0.67	0.504
_CONS	-0.61818	0.55443	-1.11	0.002
R- Square	within			0.1415
	between			0.0148
	overall			0.0213

4.5 Discussion

4.5.1 Board Diversity and Investment Decisions

The results from the fixed effects regression model assert that in East Africa, listed financial firms' investment decision is significantly negatively influenced by board gender diversity, implying that when the ratio of female directors increases by -0.01240 in the board room, the capital expenditure decreases by one unit. The findings suggest that high proportion of female representation on the board is linked to a more cautious investment behavior, possibly indicating a greater degree of risk aversion in decisions associated with investments. Thus, the alternative hypothesis (H_1) was accepted. These results agree with the findings of Yu, 2023; Ali et al. (2022) and Harjoto et al., (2018) who found that the proportion of female board members is negatively related to investment decisions. Similarly, board nationality diversity showed a significant and positive influence on investment decisions, suggesting the rejection of H_2 , which states a negative relationship. This relationship indicates that as the proportion of foreign directors increases by 0.01078 in the board room, the capital expenditure increases by a unit. Thus, listed financial firms in East Africa seeking to improve their investment decision should focus on the number of foreign nationals on their board. These findings differ from those of Darmadi (2011) and Rose (2007), who suggested an insignificant influence of board nationality diversity. Board tenure diversity asserts a significant positive influence on investment decisions, implying that the experienced director improves the level of investment decision by one unit for every 0.03095 increase in director experience. The results agree with the findings of Fun et al. (2023); Khan et al., (2025), who established a positive influence. board financial expertise diversity found to be positively influencing investment decisions, indicating that an increase in directors with financial knowledge leads to an increase in capital expenditure. Consequently, an increase in the ratio of financial knowledge of directors in the board by 1.77540 leads to a unit increase in investment decision. The results are similar to those of Ruigrok et al. (2007); and Bertrand and Schoar (2003) who suggested a positive influence of board financial knowledge on firm investment decisions.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The study was conducted to achieve the objective of assessing the influence of board diversity on investment decisions among listed financial firms in East African stock markets, namely the Nairobi Securities Exchange, the Dar es Salaam Stock Exchange, the Uganda Securities Exchange and the Kigali Stock Exchange. The study covered the period from 2017 to 2023. Investment decision served as dependent variable, while the proxy for independent variables included board gender diversity, board nationality diversity, board tenure diversity and board financial

expertise diversity, while control variables were represented by board independence, board size, board meeting, audit quality, firm size and firm age. The results from the fixed effects regression analysis concluded that board gender diversity is influencing investment decisions negatively. Furthermore, board nationality diversity, board tenure diversity and board financial expertise diversity influence investment decisions positively. Drawing on these results, listed financial firms in East Africa seeking to improve investment decisions should focus on increasing the proportion of foreign directors, the number of directors with financial knowledge and experienced directors, while carefully managing the proportion of female directors on the board. The findings help listed financial firms in East Africa in formulating proper policies that improve investment decisions, growth and profitability.

5.2 Recommendations

In light of the findings, the study recommends that listed financial firms in in East African stock markets should consider strengthening board composition by increasing the proportion of directors with financial expertise, relevant experience and international exposure. This is because nationality diversity, tenure diversity and financial expertise diversity were found to improve investment decisions. While gender diversity exhibited a negative relationship with investment decisions in this context, firms are recommended to focus on fostering effective board dynamics and inclusive decision making processes rather than limiting representation. Future research may extend the analysis to non-financial firms and adopt more advance econometric techniques to address potential endogeneity concerns and enhance the robustness of the findings. Additionally, further research could examine listed financial firms across Sub-Saharan Africa and conduct a comparative analysis between East Africa and West Africa.

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Household determinants of food security among leafy vegetable producers in semi-arid central Tanzania

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ABSTRACT

This study examined household-level determinants of food security among smallholder leafy vegetable producers in semi-arid central Tanzania, focusing on the roles of gender dynamics, household structure, and enabling conditions. A cross-sectional survey was conducted with 385 vegetable-producing households in Dodoma City and Singida Municipal Council. Food security was measured using the Household Food Insecurity Access Scale (HFIAS) and was analysed as a binary outcome (food secure versus any food insecurity). Data were analysed using hierarchical binary logistic regression. Results indicated that 52.7% of households were fully food secure, with very low prevalence of severe food insecurity, suggesting a stabilising effect of vegetable-based livelihoods. Female-headed households exhibited 55.2% lower odds of food insecurity compared to male-headed households (OR = 0.448, $p < 0.001$), challenging conventional assumptions about gender vulnerability. Married households had 45.8% lower odds of food insecurity (OR = 0.542, $p = 0.030$). High crop diversification was associated with increased food insecurity (OR = 2.473, $p = 0.001$), suggesting distress-driven diversification rather than a causal pathway. Climate-smart agriculture adoption showed a clear dichotomy between near-universal uptake of traditional practices and minimal adoption of technology-intensive approaches. Nearly one third of households employed vegetable-based coping strategies, predominantly distress sales, underscoring the dual role of leafy vegetables as food sources and liquid assets. The findings highlighted that household demographic characteristics, particularly gender of household head and marital status, were stronger predictors of food security than individual agricultural practices within vegetable-producing communities. Policy implications included strengthening gender-responsive agricultural interventions, investing in complementary water infrastructure, and integrating leafy vegetable production into national food security strategies.

Keywords: Climate-Smart Agriculture, Food Security, Female-Headed Households, Gender, Household Food Insecurity, Leafy Vegetables, Smallholder Farmers, Semi-Arid Tanzania

I. INTRODUCTION

Food security remains a pressing development challenge across sub Saharan Africa, where approximately 257 million people are undernourished (FAO, 2023). In Tanzania, agriculture employs more than 65 percent of the population and contributes nearly 30 percent of national gross domestic product. Despite this importance, food insecurity persists due to erratic rainfall, inadequate infrastructure, limited access to productive inputs, and strong dependence on rain fed farming systems (NBS, 2022; WFP, 2023). Between November 2023 and April 2024, nearly 900,000 people in mainland Tanzania experienced acute food insecurity classified as Integrated Food Security Phase Classification Phase 3 or higher, underscoring the urgent need to strengthen climate resilient agricultural systems (IPC, 2024).

Leafy vegetable production has emerged as an increasingly important livelihood strategy within semi arid farming systems. These crops have short production cycles ranging from four to eight weeks, tolerate moisture stress better than most staple crops, and allow multiple harvests within a single season (Bua & Onang, 2017; Kapari *et al.*, 2023). The multifunctional role of leafy vegetables, serving simultaneously as food sources, income generating commodities, and liquid assets during periods of stress, positions vegetable-based livelihood systems as a potentially important pathway for food security in climate vulnerable regions.



Climate-Smart Agriculture (CSA) has emerged as a strategic response to production challenges in such environments, seeking to increase agricultural productivity, enhance resilience, and promote environmental sustainability (World Bank, 2024). In Tanzania, the National CSA Programme promotes context specific interventions in semi arid regions such as Dodoma and Singida (URT, 2015). However, most empirical work on CSA and food security in Tanzania has concentrated on staple crops such as maize, sorghum, and pigeon peas (Yusuph *et al.*, 2023; Kamuzora, 2023; Nindi, 2024). Recent work by Erick *et al.* (2025) examined behavioural determinants of CSA adoption among leafy vegetable agripreneurs in the same study region (Erick *et al.*, 2025a), while Erick *et al.* (2025b) assessed CSA contributions to food security through a mixed methods approach. Nevertheless, limited attention has been directed toward understanding household level determinants of food security among smallholder vegetable producers, particularly the roles of gender dynamics and household structure in shaping food access outcomes.

This study addresses this gap by examining how household characteristics, adaptive agricultural practices, and enabling conditions shape household food security among leafy vegetable producers in semi arid central Tanzania. The study contributes to the literature in three ways: first, by providing empirical evidence on determinants of food security within a vegetable based livelihood context; second, by illuminating gender dynamics in household food security outcomes, including evidence that challenges conventional assumptions about the vulnerability of female headed households; and third, by examining how contextual enabling conditions interact with food security in ways that underscore the complexity of resource to outcome relationships in semi arid environments. In doing so, the study offers evidence-based insights to inform gender-responsive and context-specific food security interventions within climate-vulnerable smallholder vegetable production systems.

1.1 Research Objective (s)

This study examines determinants of household food security among leafy vegetable producers in semi-arid central Tanzania. Specifically, the study pursues three objectives:

- (i) To assess the prevalence and severity of household food insecurity among leafy vegetable producing households using the Household Food Insecurity Access Scale.
- (ii) To analyse the influence of household characteristics and adaptive agricultural practices, particularly crop diversification, on household food insecurity.
- (iii) To evaluate the role of enabling conditions, including proximity to water sources and market access, and to determine their relative contribution to food insecurity outcomes within a hierarchical logistic regression framework.

II. LITERATURE REVIEW

2.1 Theoretical Review

This study is grounded in an integrated theoretical perspective combining the Sustainable Livelihoods Framework (SLF), CSA theory, and Food Security theory. No single theory sufficiently captures the interconnected dimensions of household assets, adaptive strategy, and livelihood outcomes within climate stressed smallholder systems.

2.1.1 Sustainable Livelihoods Framework

The SLF provides the foundational lens for understanding household level dynamics under vulnerability (Chambers and Conway, 1992; DFID, 1999). It conceptualises livelihoods as combinations of capabilities, assets, and activities, identifying five forms of capital: human, natural, financial, physical, and social. In this study, gender of household head, marital status, and household size represent elements of human and social capital that influence decision making authority, labour allocation, and resource mobilisation. Gender of household head is of particular analytical interest given conflicting evidence: while female headed households are conventionally associated with greater food insecurity (Lutomia *et al.* 2019; Hailemariam *et al.*, 2024), emerging evidence suggests that women's roles in food provisioning may confer protective effects under certain livelihood configurations (Egah *et al.*, 2023; Awoke *et al.*, 2025).

2.1.2 Climate-Smart Agriculture Theory

CSA theory provides a production focused perspective on agricultural adaptation (FAO, 2013; Lipper *et al.*, 2014), emphasising increased productivity, strengthened resilience, and environmental sustainability. Within vegetable systems, CSA practices provide the production context within which household level determinants of food security operate. However, the relationship between individual CSA practices and food security is not necessarily straightforward: adoption may reflect proactive risk management, reactive coping, or response to extension advice, and may not uniformly translate into improved food security in cross sectional observation. This study examines CSA



adoption patterns descriptively while testing crop diversification as an indicator of adaptive engagement in regression analysis (Bongole *et al.*, 2022; Egah *et al.*, 2020; Mutengwa *et al.*, 2023; Mthethwa *et al.*, 2022).

2.1.3 Food Security Theory

Food security exists when all people at all times have physical, social, and economic access to sufficient, safe, and nutritious food for an active and healthy life (World Food Summit, 1996). This study focuses on household food access, measured using the Household Food Insecurity Access Scale (HFIAS) developed under the Food and Nutrition Technical Assistance project (Coates *et al.*, 2007). The integration of Food Security theory with the SLF and CSA theory enables a structured linkage between household assets, adaptive practice, contextual conditions, and food insecurity outcomes.

2.1.4 Empirical Evidence on Food Security Determinants in Tanzania and East Africa

Empirical research on household food security determinants in Tanzania and the broader East African region has identified several consistent predictors. Lutomia *et al.* (2019) found that female-headed households in Tanzania experienced greater food insecurity, attributing this to limited access to land and productive inputs. However, Egah *et al.* (2023) provided contrasting evidence from West Africa, suggesting that women's income control can positively influence household food security. In the East African context, Hailemariam *et al.* (2024) documented persistent gender gaps in Climate-Smart Agriculture adoption across sub-Saharan Africa, with implications for food security outcomes. Within Tanzania specifically, Warning (2022) demonstrated that access to irrigation significantly improved food security, while Kapari *et al.* (2023) emphasised the contribution of smallholder farmers to food security through diversified production systems. Erick *et al.* (2025b) examined CSA contributions to food security among leafy vegetable agripreneurs in the same study region, finding that mulching and integrated soil and water management significantly reduced food insecurity risk. Collectively, these studies highlight the importance of gender dynamics, agricultural practices, and resource access as determinants of food security, while revealing that the direction and magnitude of these effects vary across livelihood contexts. The present study extends this evidence base by examining these determinants specifically within vegetable-based livelihood systems, a context that has received limited empirical attention.

2.1.5 Integrated Conceptual Framework

The integrated framework positions household characteristics as central determinants of food security, with adaptive agricultural practice and contextual enabling conditions as complementary factors. Household characteristics shape decision making capacity, labour availability, and resource mobilisation. Crop diversification represents the operational indicator of adaptive practice, conceptualised as potentially bidirectional: it may reflect proactive strategy or reactive coping, a distinction that cross-sectional data cannot fully resolve. Proximity to water sources and market access represent structural characteristics of the livelihood environment. District location is included as a control variable to account for contextual heterogeneity between Dodoma City and Singida Municipal Council. The integrated relationships can be expressed formally. Let *FI* denote household food insecurity status (binary). The general conceptual model posits:

$$FI = f(\mathbf{H}, \mathbf{A}, \mathbf{E}, \mathbf{C})$$

where:

H = household characteristics vector (gender, marital status, household size)

A = adaptive agricultural practice (crop diversification)

E = enabling conditions vector (water proximity, market access)

C = control (district location)

The framework implies a hierarchical structure: household characteristics (**H**) represent the foundational determinants grounded in the Sustainable Livelihoods Framework, while adaptive practice (**A**) and enabling conditions (**E**) represent complementary factors derived from CSA and food security theory. This hierarchical logic motivates the nested model specification detailed in Section 3.5, where Model 1 tests the independent contribution of **H** and Model 2 adds **A** and **E** to assess their incremental explanatory value.

III. METHODOLOGY

3.1 Study area

The study was conducted in Ihumwa and Iyumbu Wards of Dodoma City District, and Uhamaka and Unyambwa Wards of Singida Municipality District, all located in central Tanzania. These districts are part of the country's semi-arid ecological zone, characterized by high temperatures ranging from 15°C to 35°C and limited annual rainfall between 500 and 600 mm, primarily received from November to April (Ekka & Mjawa, 2020; Swamila *et al.*, 2020). The selection of Dodoma City and Singida Municipality was informed by agricultural extension records, which identified

them as the leading leafy vegetable-producing districts in their respective regions. This production advantage is attributed to their relatively greater access to irrigation water, the presence of established supply chains, and proximity to major regional markets.

These selected wards also reflect variation in farming practices, agro-ecological conditions, and degrees of market integration, making them ideal for examining the dynamics of climate change adaptation. This targeted approach ensured that the study focused on the most relevant production zones where farmers are actively engaged in navigating climate-related risks and implementing adaptive responses. Figure 1. Maps depicting the study area location and administrative divisions.

(A) Map of Tanzania, with the study regions highlighted.

(B) Map of Dodoma and Singida regions within Tanzania.

(C) Map of Singida Municipality, highlighting the Uhamaka and Unyambwa wards where data were collected.

(D) Map of Dodoma City, highlighting the Ihumbu and Iyumbu wards where data were collected.

Data sources: National Bureau of Statistics (NBS) and OpenStreetMap Contributors.

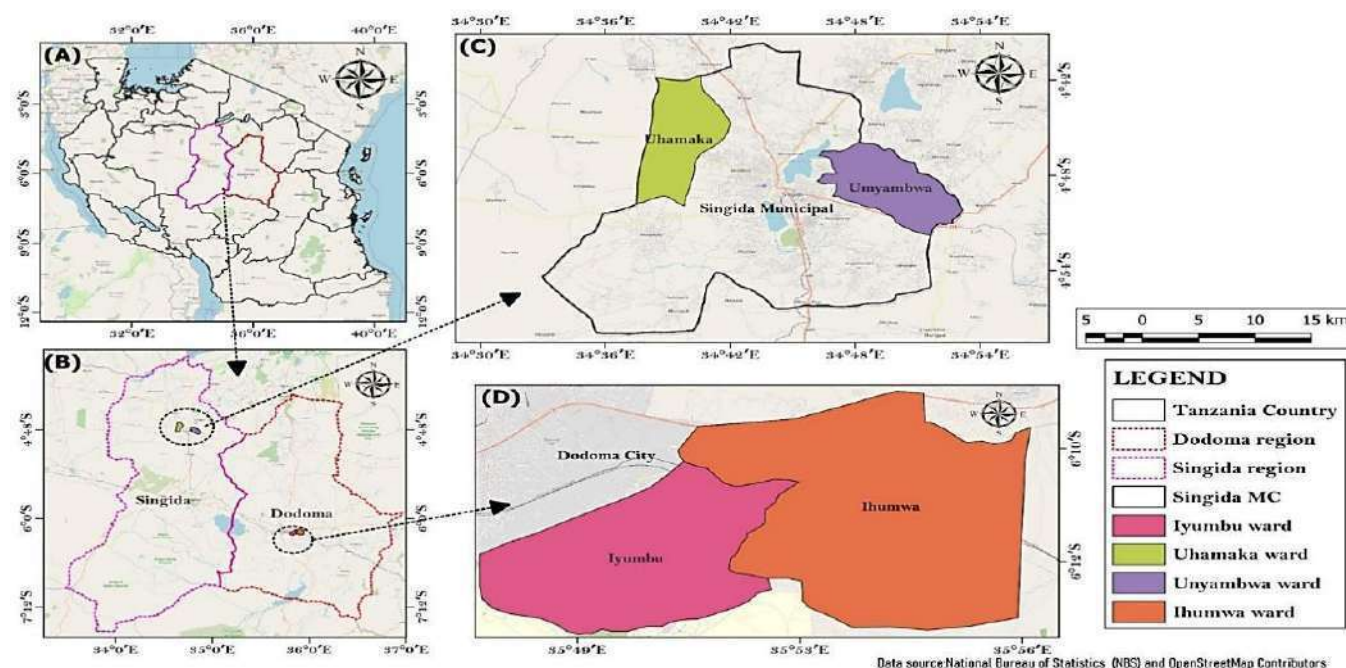


Figure 1

The maps of the Study Area

3.2 Research Design and Sampling

A cross sectional research design was employed with multistage sampling. Two districts were purposively selected, followed by two wards per district based on concentration of vegetable farming. Households were randomly selected from village registers maintained by ward agricultural extension officers. The sample size was determined using Yamane (1967) formula:

$$n = N / [1 + N(e)^2]$$

where N represents the estimated population of vegetable producing households (approximately 8,500, based on ward-level vegetable-producing household registers compiled by district agricultural extension offices in Dodoma City and Singida Municipal Council) and e represents the desired margin of error (0.05), yielding a minimum sample of 382. After adding a buffer, 400 questionnaires were distributed; data cleaning removed 15 incomplete responses, yielding a final analytical sample of 385 valid cases (96.25% response rate). With 182 food insecure cases and seven predictors, the study provides approximately 26 events per variable, exceeding the minimum of 10 recommended for binary logistic regression (Vittinghoff and McCulloch, 2007).

3.3 Data Collection Instruments

Data were collected using a structured questionnaire administered through face to face interviews. Section A captured socio demographic characteristics (gender, age, education, marital status, household size). Section B assessed adoption of nine CSA practices using a five-point Likert scale (1 = Never to 5 = Always): crop rotation, organic fertiliser application, improved seed use, mulching, crop diversification, inorganic fertiliser use, agroforestry, greenhouse production, and drip irrigation. Section C employed the HFIAS comprising nine occurrence questions spanning anxiety about food supply, insufficient food quality, and insufficient food quantity (Coates *et al.*, 2007), plus three vegetable



specific coping items. Section D collected information on land ownership, land size, proximity to water sources, and market access. The questionnaire was pre-tested with 20 households.

3.4 Variable Measurement

3.4.1 Dependent Variable

HFIAS responses were scored on the standard 0 to 3 frequency scale and summed across nine items (theoretical range: 0 to 27). In this sample, scores ranged from 0 to 5 ($M = 0.76$, $SD = 1.01$), with 52.7% scoring zero. The standard four-category FANTA classification (food secure, mildly food insecure, moderately food insecure, severely food insecure) yielded 94.8% food secure, 3.4% mildly food insecure, 1.8% moderately food insecure, and 0% severely food insecure. The apparent discrepancy between 94.8% food secure under the four-category classification and 52.7% under the binary classification reflects the differing thresholds: the FANTA algorithm classifies households as food secure if they report no food insecurity experience or only rarely experience worry about food, whereas the binary classification used in this study treats any non-zero HFIAS score (including rare experiences of worry) as food insecurity. This more conservative binary approach captures the full spectrum of food access difficulties and yields a more balanced outcome distribution. Because the extreme concentration of scores under the four-category classification renders ordered logistic regression inappropriate, the dependent variable was operationalised as binary: food secure (HFIAS = 0) versus any food insecurity (HFIAS ≥ 1). The resulting 52.7/47.3 split provides a balanced outcome suitable for binary logistic regression, consistent with approaches used in comparable studies (Gebreyesus *et al.*, 2015).

3.4.2 Independent Variables

Among the nine CSA practices assessed, crop diversification was selected as the sole practice-level indicator for the regression model based on two criteria. First, it was the only CSA practice that showed a statistically significant bivariate association with food insecurity ($\chi^2 = 6.74$, $p = 0.009$); the remaining eight practices showed no significant bivariate relationship with food insecurity status. Second, the near-universal adoption of traditional practices (79–97%) produced insufficient variation to meaningfully differentiate food security outcomes, whereas crop diversification exhibited a more balanced distribution (79.2% high adoption) providing adequate statistical variation for regression analysis. Table 2 summarises the definitions, measurement, and expected direction of all variables included in the model.

Seven independent variables were included: (1) Gender of household head (binary: 1 = female, 0 = male; 57.1% female). (2) Marital status (binary: 1 = married, 0 = not married; 81.6% married). (3) Household size (continuous: range 1 to 12, $M = 5.4$). (4) District (binary: 1 = Singida, 0 = Dodoma). (5) Crop diversification (binary: 1 = high adoption scoring 4 or 5; 0 = low adoption scoring 1 to 3). Among the nine CSA practices, only crop diversification was significantly associated with food insecurity at the bivariate level ($\chi^2 = 6.74$, $p = 0.009$). (6) Proximity to water sources (binary: within vs. beyond 100 metres). (7) Market access (binary: good vs. poor/average). Education level and land size were collected but excluded from the primary regression specification based on non-significant bivariate associations with food insecurity status. For education, food insecurity prevalence varied modestly across categories (no formal/adult education: 63.2%, $n = 19$; primary incomplete: 37.8%, $n = 74$; primary complete: 49.8%, $n = 231$; secondary or above: 44.3%, $n = 61$), but this variation was not statistically significant ($\chi^2 (3) = 5.372$, $p = 0.146$). When collapsed to a binary indicator (secondary education or above vs. below), the association remained non-significant ($\chi^2 (1) = 0.140$, $p = 0.709$). For land size, food insecurity rates were similarly uniform across categories (less than one acre: 48.9%, $n = 188$; one to two acres: 41.3%, $n = 92$; two to three acres: 50.0%, $n = 100$; more than three acres: 40.0%, $n = 5$; $\chi^2 (3) = 1.928$, $p = 0.587$). A t-test comparing mean land size between food secure ($M = 1.80$, $SD = 0.86$) and food insecure households ($M = 1.79$, $SD = 0.89$) confirmed no significant difference ($t = 0.132$, $p = 0.895$).

To assess whether the exclusion of these variables might bias the remaining estimates, a sensitivity analysis was conducted by estimating an extended model including education (binary: secondary or above vs. below) and land size (binary: greater than one acre vs. one acre or less) alongside the seven original predictors. The likelihood ratio test comparing the extended model to Model 2 was non-significant ($\Delta LR \chi^2 (2) = 2.114$, $p = 0.347$), indicating that education and land size do not contribute significant explanatory power beyond the existing predictors. Neither variable was individually significant in the extended model (education: OR = 0.856, $p = 0.618$; land size: OR = 0.688, $p = 0.174$). Critically, the inclusion of these variables produced negligible changes in the odds ratios of the primary predictors: female household head (OR changed from 0.448 to 0.446), married status (0.542 to 0.541), crop diversification (2.473 to 2.419), and water proximity (2.381 to 2.707). The extended model showed marginally higher AIC (516.7 vs. 514.8) and BIC (556.2 vs. 546.4), confirming that the more parsimonious specification is preferred. These results support the exclusion of education and land size from the primary analysis, though their omission is acknowledged as a limitation.

3.4.3 CSA Index Reliability

Cronbach's alpha for the nine item CSA index was 0.655, below the 0.70 threshold. The five-item traditional sub index approached acceptability ($\alpha = 0.693$), while the three-item technology intensive sub index was unreliable ($\alpha = -0.263$). These results justify using crop diversification as an individual indicator rather than a composite index.

3.5 Data Analysis

Data were analysed using IBM SPSS Statistics (Version 27). Descriptive statistics, chi square tests, independent samples t tests, and hierarchical binary logistic regression were performed. A hierarchical binary logistic regression was employed to operationalise the conceptual model $FI = f(\mathbf{H}, \mathbf{A}, \mathbf{E}, \mathbf{C})$. The binary nature of the dependent variable (food secure vs. any food insecurity) motivates the logistic specification. The log odds of food insecurity are modelled as a linear function of predictors:

$$\ln [P(Y_i = 1) / P(Y_i = 0)] = \beta_0 + \sum_{j=1}^k \beta_j X_{ij}$$

where $Y_i = 1$ if household i is food insecure ($HFIAS \geq 1$) and $Y_i = 0$ if food secure ($HFIAS = 0$); X_{ij} denotes the value of the j th predictor for household i ; and β_j is the corresponding coefficient. Two nested models were specified to test the hierarchical structure:

Model 1 (Household characteristics only):

$$\text{logit}(FI) = \beta_0 + \beta_1 \text{Gender}_i + \beta_2 \text{Marital}_i + \beta_3 \text{HHSIZE}_i + \beta_4 \text{District}_i$$

Model 2 (Full model with CSA and enabling conditions):

$$\text{logit}(FI) = \beta_0 + \beta_1 \text{Gender}_i + \beta_2 \text{Marital}_i + \beta_3 \text{HHSIZE}_i + \beta_4 \text{District}_i + \beta_5 \text{CropDiv}_i + \beta_6 \text{Water}_i + \beta_7 \text{Market}_i$$

The variables correspond to the theoretical domains as follows: $\mathbf{H} = \{\beta_1 \text{Gender}, \beta_2 \text{Marital}, \beta_3 \text{HHSIZE}\}$ captures household characteristics from the Sustainable Livelihoods Framework; $\mathbf{A} = \{\beta_5 \text{CropDiv}\}$ represents the adaptive agricultural practice indicator from CSA theory; $\mathbf{E} = \{\beta_6 \text{Water}, \beta_7 \text{Market}\}$ represents contextual enabling conditions; and $\mathbf{C} = \{\beta_4 \text{District}\}$ is the control. All binary predictors are coded 1/0 as specified in Section 3.4.

The incremental contribution of Model 2 over Model 1 is assessed using the likelihood ratio difference test:

$$\Delta G^2 = G^2_{\text{Model 2}} - G^2_{\text{Model 1}} \sim \chi^2(df = 3)$$

where ΔG^2 follows a chi square distribution with three degrees of freedom (the number of additional parameters in Model 2). A significant ΔG^2 indicates that $\mathbf{A}$ and $\mathbf{E}$ contribute explanatory power beyond $\mathbf{H}$ alone. Results are reported as odds ratios ($OR = e^{\beta}$) with 95% confidence intervals. An $OR > 1.0$ indicates increased odds of food insecurity; $OR < 1.0$ indicates a protective effect. Model fit was assessed using McFadden's pseudo R^2 , Nagelkerke R^2 , AIC, BIC, classification accuracy, and the Hosmer–Lemeshow goodness of fit test. Multicollinearity was evaluated through variance inflation factors (VIF). Statistical significance was set at $\alpha = 0.05$.

The modest overall explanatory power of the model is consistent with the multifactorial nature of food security, which is influenced by numerous variables beyond the scope of the present instrument. Results should be interpreted as identifying significant associations among the examined variables rather than as a comprehensive predictive model of food insecurity.

3.6 Ethical Considerations

Ethical clearance was obtained from relevant institutional review boards. Informed consent was obtained from all participants, who were informed of their right to withdraw. Confidentiality was maintained through anonymisation and secure data storage.

IV. FINDINGS & DISCUSSIONS

4.1 Socio demographic Characteristics

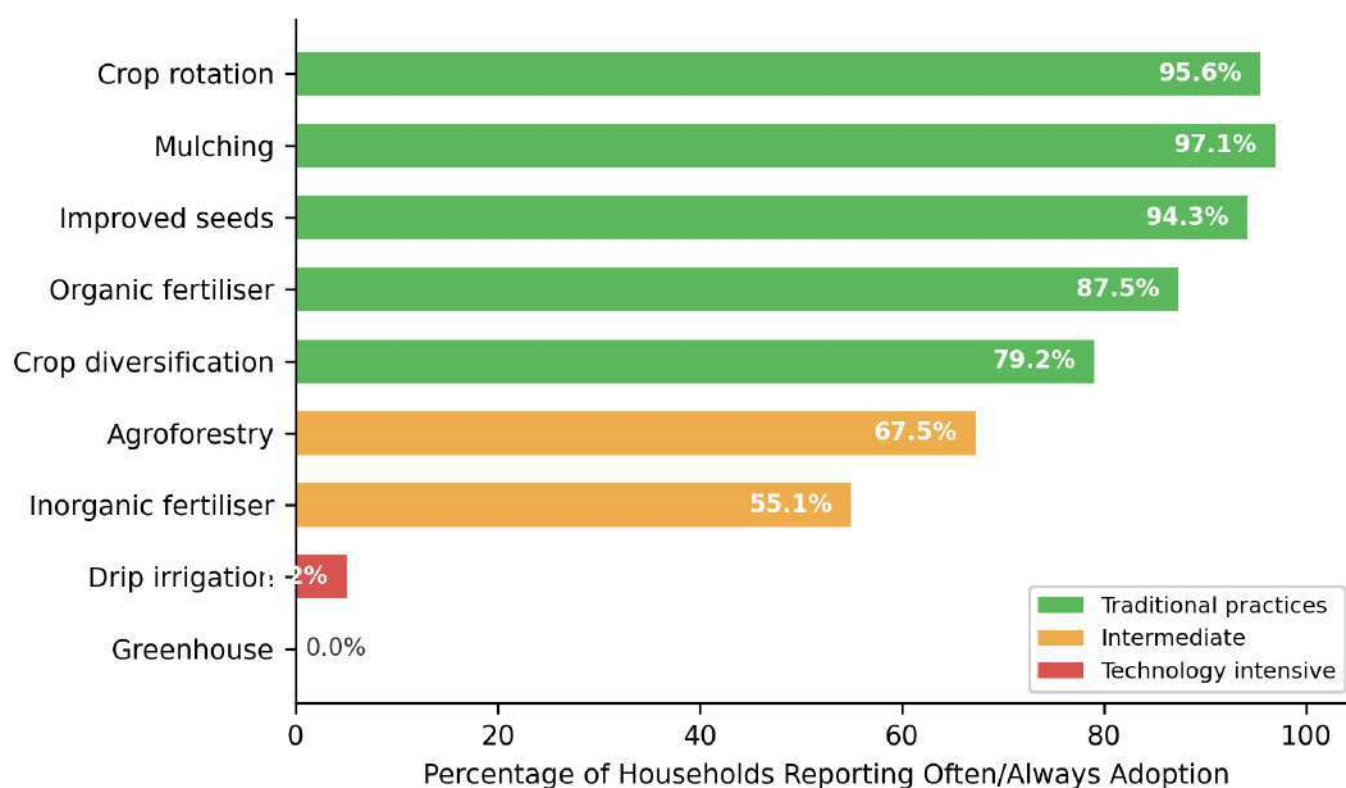
The 385 respondents were drawn from Dodoma City ($n = 208$, 54.0%) and Singida Municipal Council ($n = 177$, 46.0%). Female respondents constituted the majority (57.1%), consistent with the feminisation of smallholder agriculture in Tanzania. Most were married (81.6%) and had completed primary education (60.0%). The mean household size was 5.4 members ($SD = 1.7$). Nearly half (48.8%) cultivated less than one acre. Most households (91.4%) were located beyond 100 metres from water sources, and 74.0% reported good market access. Table 1 presents the full socio demographic profile.

Table 1*Socio demographic Characteristics of Respondents (N = 385)*

Characteristic	Category	n	%
District	Dodoma City	208	54.0
	Singida MC	177	46.0
Gender of HH head	Female	220	57.1
	Male	165	42.9
Marital status	Married	314	81.6
	Not married	71	18.4
Education level	No formal/Adult ed.	19	4.9
	Primary incomplete	74	19.2
	Primary complete	231	60.0
	Secondary or above	61	15.8
Water proximity	Within 100 m	33	8.6
	Beyond 100 m	352	91.4
Market access	Good	285	74.0
	Poor/Average	100	26.0
Household size	Mean (SD)	5.4	(1.7)

4.2 Climate-Smart Agriculture Practice Adoption

A pronounced adoption gradient was evident across practice types (Figure 1). Traditional practices showed near universal uptake: mulching (97.1%), crop rotation (95.6%), improved seeds (94.3%), organic fertiliser (87.5%), and crop diversification (79.2%). In contrast, technology intensive practices showed markedly lower adoption: greenhouse production was virtually absent (0%), drip irrigation was minimal (5.2%), and agroforestry was intermediate (67.5%) (Awoke *et al.*, 2023). District comparisons revealed significantly higher adoption of crop rotation, organic fertiliser, inorganic fertiliser, and agroforestry in Singida compared to Dodoma (all $p < 0.05$). Cronbach's alpha confirmed that the nine CSA practices do not form a coherent unidimensional construct ($\alpha = 0.655$).

**Figure 1***Climate-Smart Agriculture practice adoption among leafy vegetable producers (N = 385).*

Bars represent percentage of households reporting 'often' or 'always' adoption. Green = traditional practices; amber = intermediate; red = technology intensive.

4.3 Household Food Security Status

The mean HFIAS score was 0.76 ($SD = 1.01$), with scores ranging from 0 to 5 (Figure 2). Among households experiencing any food insecurity (47.3%), the most commonly reported experiences were eating fewer meals (19.2%), eating unwanted food varieties (16.6%), limited food variety (10.1%), and eating smaller meals (8.3%). Severe food deprivation was rare: 1.3% reported going to bed hungry, 0.8% went to bed without food, and no household reported spending an entire day and night without eating.

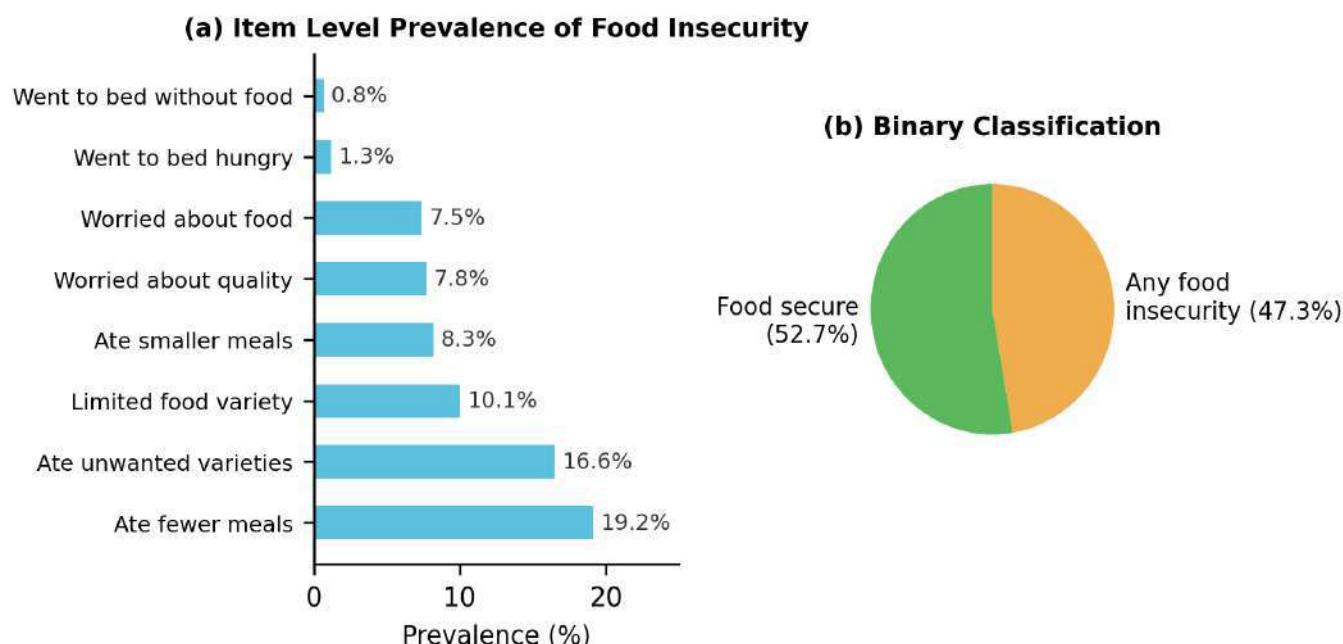


Figure 2

Household Food Security Status

(a) item level prevalence of food insecurity experiences; (b) binary classification used for regression analysis (N = 385).

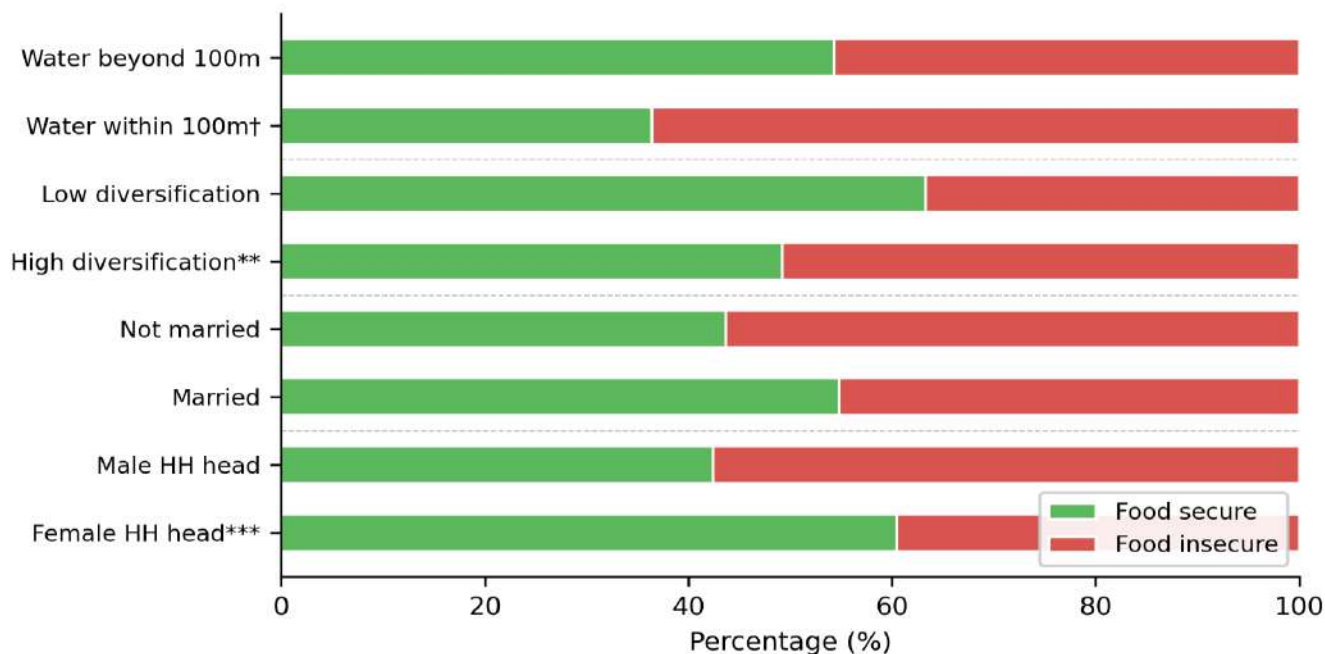
4.4 Vegetable Based Coping Mechanisms

Overall, 32.7% of households employed at least one vegetable based coping strategy: selling vegetables at reduced prices (31.9%), food shortage before harvest (20.8%), and consuming more vegetables due to unavailability of other foods (5.7%). No significant association was found between vegetable-based coping and HFIAS based food insecurity ($\chi^2 = 0.41$, $p = 0.523$), suggesting that vegetable coping may operate through pathways not fully captured by the HFIAS access dimension.

A supplementary analysis examined whether household characteristics were associated with the use of vegetable-based coping strategies. No significant differences were found between households employing and not employing vegetable-based coping across gender of household head (54.0% vs. 58.7% female, $\chi^2 = 0.590$, $p = 0.442$), marital status (81.0% vs. 81.9% married, $\chi^2 = 0.005$, $p = 0.941$), household size (M = 5.3 vs. 5.4, $t = -0.280$, $p = 0.780$), district (41.3% vs. 48.3% Singida, $\chi^2 = 1.399$, $p = 0.237$), crop diversification (77.0% vs. 80.3% high, $\chi^2 = 0.385$, $p = 0.535$), or market access (74.6% vs. 73.7% good, $\chi^2 = 0.003$, $p = 0.955$). The absence of significant predictors suggests that vegetable-based coping strategies are employed broadly across household types rather than being concentrated among particular demographic or agricultural profiles, consistent with the widespread role of leafy vegetables as a common livelihood asset in the study area.

4.5 Bivariate Associations with Food Insecurity

Figure 3 presents bivariate associations between predictor variables and food insecurity status. Gender showed the strongest bivariate association: 39.5% of female headed households were food insecure compared to 57.6% of male headed households ($\chi^2 = 11.58$, $p < 0.001$). Marital status approached significance, with married households showing lower insecurity (45.2%) than unmarried households (56.3%). Among CSA practices, crop diversification was the only practice significantly associated with food insecurity: high adoption households had higher food insecurity prevalence (50.8%) than low adoption households (36.7%, $p = 0.009$). Water proximity approached conventional significance (63.6% vs. 45.7%, $p = 0.074$). Household size, market access, education, and district were not significantly associated.

**Figure 3**

Bivariate Associations between Predictor Variables and Food Insecurity Status
($N = 385$). Significance levels: *** $p < 0.001$, ** $p < 0.01$, † $p < 0.10$.

4.6 Determinants of Household Food Insecurity

Table 2 presents the hierarchical binary logistic regression results and Figure 4 displays the odds ratios from Model 2. Model 1 was statistically significant (LR $\chi^2(4) = 17.03$, $p = 0.002$, Nagelkerke $R^2 = 0.058$). Model 2 significantly improved fit (Δ LR $\chi^2(3) = 16.77$, $p < 0.001$). The full model was highly significant (LR $\chi^2(7) = 33.80$, $p < 0.001$) with Nagelkerke $R^2 = 0.112$ and classification accuracy of 62.1%. The Hosmer–Lemeshow test indicated acceptable fit ($\chi^2(8) = 14.53$, $p = 0.069$). All VIF values were below 1.2. Four significant predictors emerged:

Gender of household head (OR = 0.448, 95% CI [0.288, 0.696], $p < 0.001$). Female headed households had 55.2% lower odds of food insecurity, the strongest predictor in the model, robust across both specifications. *Marital status* (OR = 0.542, 95% CI [0.311, 0.941], $p = 0.030$). Married households had 45.8% lower odds of food insecurity, strengthening from marginal significance in Model 1. *Crop diversification* (OR = 2.473, 95% CI [1.433, 4.269], $p = 0.001$). High adoption households had 2.47 times higher odds of food insecurity, consistent with distress diversification rather than a causal pathway from diversification to insecurity. *Proximity to water sources* (OR = 2.381, 95% CI [1.086, 5.219], $p = 0.030$). This result should be interpreted cautiously given the small water proximate group ($n = 33$) and its distinct compositional profile.

Table 2

Hierarchical Binary Logistic Regression: Determinants of Food Insecurity ($N = 385$)

Variable	Model 1			Model 2				
	B	SE	OR	p	B	SE	OR	p
Female HH head	−0.758	0.214	0.468	<.001***	−0.803	0.225	0.448	<.001***
Married	−0.521	0.271	0.594	.054†	−0.613	0.282	0.542	.030*
Household size	0.061	0.062	1.063	.327	0.072	0.064	1.075	.263
Singida district	−0.134	0.219	0.874	.540	−0.290	0.231	0.748	.210
Crop divers. (high)	—	—	—	—	0.905	0.279	2.473	.001**
Water ≤ 100 m	—	—	—	—	0.867	0.400	2.381	.030*
Good market access	—	—	—	—	0.391	0.259	1.479	.131
Model fit	LR $\chi^2(4) = 17.03$, $p = .002$				LR $\chi^2(7) = 33.80$, $p < .001$			
Nagelkerke R^2	0.058				0.112			
AIC / BIC	525.6 / 545.3				514.8 / 546.4			

Note. DV: Food insecurity (1 = any insecurity, 0 = food secure). OR = Odds Ratio. † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. — = variable not included. Hosmer–Lemeshow $\chi^2(8) = 14.53$, $p = .069$. All VIFs < 1.2.

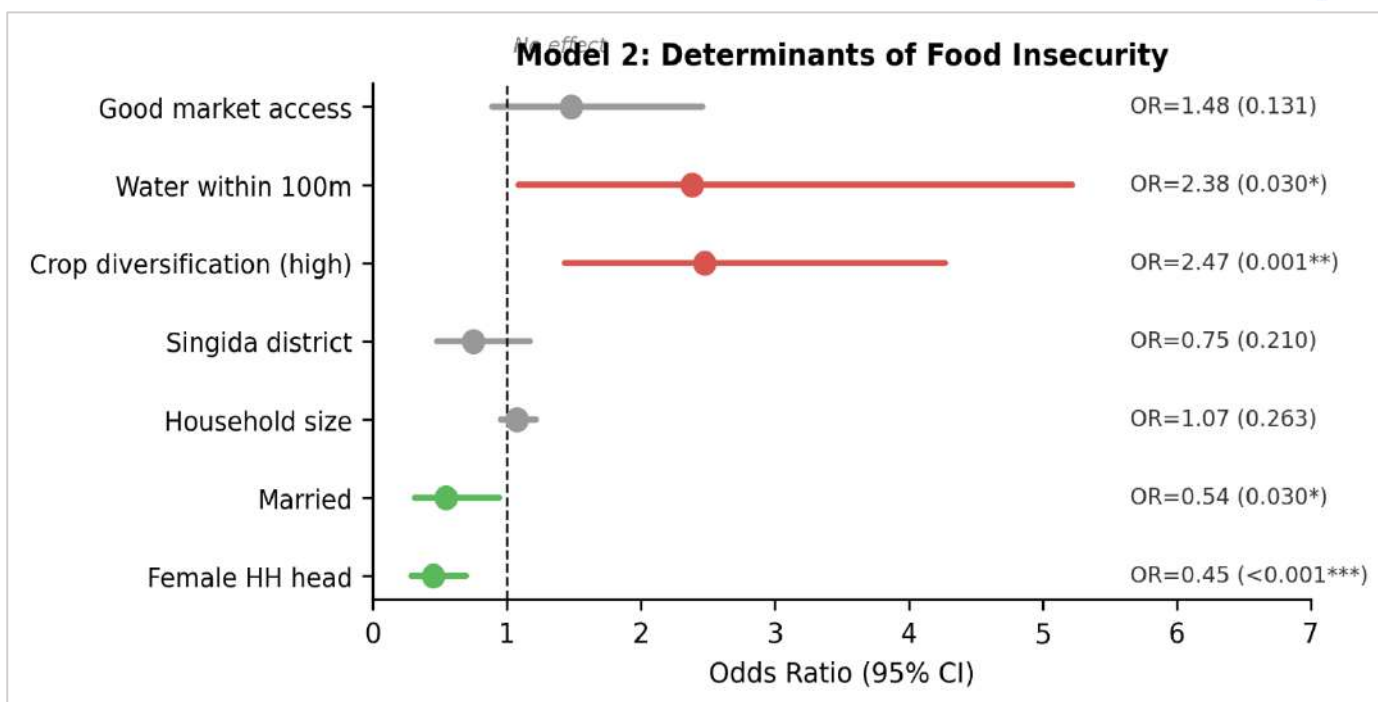


Figure 4

Forest plot of odds ratios (95% CI) from Model 2. Green = protective (OR < 1, significant); red = risk factor (OR > 1, significant); grey = not significant. Dashed line indicates no effect (OR = 1.0).

4.7 Discussion

4.7.1 The Protective Role of Female Headship

The most robust finding is that female headed households exhibited significantly lower odds of food insecurity, with this effect remaining strong across both model specifications. This challenges conventional assumptions that female headed households are uniformly more food insecure (Lutomia *et al.* 2019) and contributes to emerging evidence that the gender to food security relationship is context specific.

Several mechanisms may explain this within vegetable-based livelihoods. Women in sub Saharan Africa frequently bear primary responsibility for household food provisioning (FAO, 2024). When heading households, this responsibility is coupled with decision making authority, potentially translating into more deliberate prioritisation of food consumption. Women farmers often concentrate on food crops and vegetables rather than cash crops (Jacobs *et al.*, 2024; Jacobs *et al.*, 2024), strengthening direct food access pathways. The feminisation of vegetable farming (57.1% female) suggests accumulated knowledge and networks that provide advantages in managing these systems. These findings resonate with Egah *et al.* (2023) and Awoke *et al.* (2025), while contrasting with global evidence of widening gender gaps (World Bank, 2024), underscoring that protective effects may be specific to livelihood systems where women's food management roles align with production system demands.

Interpreted through the Sustainable Livelihoods Framework (SLF), the female headship finding extends conventional understandings of human and social capital within livelihood systems. The SLF identifies human capital and social capital as key asset categories shaping livelihood outcomes (Chambers and Conway, 1992; DFID, 1999). The present results suggest that when women head households in vegetable-based livelihood systems, their accumulated knowledge of food crop management, social networks within vegetable marketing, and decision-making authority over food expenditure collectively constitute forms of human and social capital that the SLF framework does not explicitly gender. In this context, the conventional SLF assumption that female-headed households are asset-poor requires qualification: within livelihood systems where women's productive roles align with household food provisioning, female headship may represent a configuration of gendered capital that confers protective effects. This theoretical refinement is consistent with the divergence between the present findings and those of Lutomia *et al.* (2019), who studied broader Tanzanian household samples where women's livelihood roles may not align as closely with food access pathways. The contrast with Egah *et al.* (2023) in West Africa and Awoke *et al.* (2025) in semi-arid Dodoma likely reflects differences in the specific livelihood configurations examined: in vegetable-specialised systems, the alignment between women's productive expertise and food security outcomes may be stronger than in mixed or cereal-dominated farming systems.



4.7.2 Marital Status and Household Social Capital

The significant protective effect of marriage strengthens the case for household social structure as central to food access outcomes. Marriage may enhance food security through pooled labour, diversified income, and shared decision making. In vegetable production, spousal labour contributions are particularly important given the labour intensive and time sensitive nature of leafy vegetable production cycles. The strengthening of the marital status effect after controlling for agricultural and contextual factors suggests that the protective effect operates through channels distinct from agricultural practice or resource access.

4.7.3 Leafy Vegetables as Multifunctional Livelihood Assets

The favourable food security profile observed, with very low prevalence of severe food insecurity, may reflect the stabilising role of vegetable production. The finding that nearly one third of households relied on vegetable based coping strategies, predominantly distress sales (31.9%), underscores the dual role of vegetables as food and liquid capital. This aligns with Mwadzingeni *et al.* (2021) and with Erick *et al.* (2025b), who found that mulching and integrated soil and water management significantly reduced food insecurity risk among leafy vegetable agripreneurs in the same region. However, reliance on distress sales signals underlying vulnerability. When farmers sell produce at reduced prices due to immediate cash needs, they forfeit potential income that could improve household food security. This pattern indicates a need for two complementary interventions: first, improved post-harvest storage infrastructure and village-level aggregation centres that enable farmers to hold produce until market conditions are more favourable; and second, access to short-term agricultural credit, particularly harvest-time loans from microfinance institutions, that would provide households with liquidity during periods of food stress without requiring them to liquidate vegetable assets at below-market prices. These value chain improvements would help transform leafy vegetables from a distress-coping mechanism into a more sustainable and profitable livelihood asset.

4.7.4 CSA Adoption and Crop Diversification

The near universal adoption of traditional CSA practices means there lacks sufficient variation to differentiate food security outcomes. This suggests that in high-adoption contexts, the relevant policy question shifts from promoting adoption to optimising effectiveness and addressing household-level factors that determine whether practices translate into food security. When 79–97% of households already practise mulching, crop rotation, improved seed use, and organic fertiliser application, further adoption campaigns yield diminishing returns. Instead, policy efforts should shift toward improving practice quality through practice-quality audits that assess whether techniques are implemented correctly, peer-to-peer learning exchanges that enable farmers to share context-specific adaptations, and adaptive management training that helps households adjust practices to changing climatic conditions. Additionally, addressing complementary constraints such as market access, post-harvest storage, and credit availability may be more effective than promoting further adoption of practices that are already widespread. Erick *et al.* (2025) similarly found that attitudes, subjective norms, and perceived behavioural control significantly influence CSA adoption among vegetable agripreneurs in this region, highlighting the importance of behavioural and institutional factors beyond adoption per se.

The positive association between crop diversification and food insecurity is most plausibly explained by reverse causality: households experiencing food access challenges diversify as a reactive coping response. This is consistent with distress diversification patterns documented by Jones *et al.* (2023) and reinforces the need to distinguish proactive from reactive diversification. The cross-sectional design precludes determining temporal ordering; longitudinal research is needed.

4.7.5 Water Access: Proximity Does Not Equal Utilisation

The positive association between water proximity and food insecurity underscores the complexity of resource-to-outcome relationships. While proximity alone appears insufficient, this finding should be interpreted with caution given the small subsample ($n = 33$). A supplemental comparison of the characteristics of water-proximate versus water-distant households reveals significant compositional differences that may partially account for this counterintuitive result. Water-proximate households were disproportionately located in Singida district (72.7% vs. 43.5%, $\chi^2 = 9.26$, $p = 0.002$), had significantly larger land holdings ($M = 2.58$ vs. 1.72 acres, $t = 5.57$, $p < 0.001$), and had larger household sizes ($M = 5.9$ vs. 5.3 , $t = 2.00$, $p = 0.046$). They also had lower rates of good market access (60.6% vs. 75.3%) and lower educational attainment (9.1% vs. 16.5% with secondary education or above), although these differences did not reach statistical significance. Notably, drip irrigation adoption was virtually identical between groups (6.1% vs. 5.1%), confirming that physical proximity to water did not translate into adoption of irrigation technology. These compositional differences, particularly the Singida concentration and poorer market access, suggest that the water proximity variable may be capturing locational disadvantages rather than a true negative effect of water access on food security.

Critically, proximity alone does not guarantee irrigation infrastructure or effective water management. The very low drip irrigation adoption (5.2%) illustrates the gap between physical access and effective utilisation. Kapari *et al.*



(2023) emphasise that smallholder food security gains from water access depend on complementary investments including affordable small-scale irrigation technologies, farmer training in water-efficient production methods, and institutional support for collective water management. Warning (2022) provides evidence from Tanzania that irrigation's food security benefits are contingent upon access to appropriate technology, extension services, and market linkages, recommending investments in small-scale drip irrigation systems, rainwater harvesting infrastructure, and solar-powered pumping alongside training in water scheduling and crop-water management. The present findings align with these recommendations: policies focusing solely on water proximity are insufficient without complementary investments in irrigation technology, management capacity, and market infrastructure.

4.7.6 Mechanisms Underlying the Female Headship Effect

The robustness of the female headship finding across both model specifications warrants dedicated consideration of the mechanisms through which this effect may operate. Several plausible pathways, individually or in combination, could explain why female-headed households exhibit lower food insecurity in this vegetable-producing context. First, decision-making authority over food expenditure may be a key pathway. When women head households, they exercise direct control over how household income is allocated, and evidence from sub-Saharan Africa consistently shows that women prioritise food expenditure over non-food consumption when they control household resources (FAO, 2024). In male-headed households, food expenditure decisions may be mediated through spousal negotiation, potentially diluting this prioritisation. Second, women in the study area may possess specialised knowledge and social networks specific to leafy vegetable production and marketing. The feminisation of vegetable farming (57.1% female) indicates that women have accumulated expertise in production techniques, pest management, harvest timing, and local market dynamics. Female household heads can deploy this knowledge directly without coordination costs, potentially translating into more efficient food provisioning. Third, women's social networks may facilitate food security through informal sharing arrangements, collective marketing, and information exchange about food prices and availability. These networks constitute a form of social capital that operates distinctly from male-dominated networks, which may be oriented more toward cash crops and off-farm opportunities. Fourth, dietary management practices may differ between female-headed and male-headed households, with women exercising greater care in food storage, meal planning, and dietary diversity. While the cross-sectional design precludes testing these mechanisms directly, each pathway is consistent with the observed protective effect and suggests specific lines of investigation for future research.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study examined determinants of household food security among leafy vegetable producers in semi arid central Tanzania. Three principal contributions emerge. First, household demographic characteristics, particularly female headship (55% lower odds of food insecurity) and marriage (46% lower odds), are the strongest and most robust determinants, challenging simplistic gender vulnerability assumptions. Second, leafy vegetables serve multiple livelihood functions as food, income, and liquid assets, with the favourable food security profile suggesting a stabilising effect. Third, the analysis reveals important complexities in CSA to food security relationships: near universal traditional adoption limits differentiation, while positive diversification to insecurity association suggests distress-driven coping rather than a causal pathway to improved food security. Looking forward, as climate variability intensifies across semi-arid Africa, leafy vegetable production offers a scalable and gender-inclusive pathway for building climate-resilient food systems, provided that complementary investments in water infrastructure, market systems, and gender-responsive extension services are mobilised to unlock the full potential of vegetable-based livelihoods.

6.2 Recommendations

First, strengthen gender-responsive agricultural interventions by providing targeted extension services for women vegetable farmers, facilitating women's access to irrigation technology and improved inputs, and supporting women's inclusion in water user associations and farmer cooperatives. These interventions should build upon the existing food management competencies demonstrated by female household heads rather than treating women solely as vulnerable beneficiaries. Second, invest in complementary water infrastructure beyond physical proximity, specifically through small-scale drip irrigation kits suited to leafy vegetable production, rainwater harvesting structures, and solar-powered pumping systems, accompanied by maintenance training and water scheduling extension to ensure sustained utilisation. Third, support market systems to reduce distress sales through mobile-based market information systems that provide real-time vegetable price data, village-level aggregation centres that strengthen farmers' bargaining position, and partnerships with microfinance institutions for harvest-time loans that enable farmers to hold produce for better prices rather than resorting to distress sales. Fourth, promote context-appropriate CSA by shifting from adoption-focused campaigns to practice-quality optimisation, including practice-quality audits to assess implementation fidelity,



peer-to-peer learning exchanges among experienced farmers, and adaptive management training that helps households adjust techniques to local conditions. Fifth, integrate leafy vegetable production into national food security strategies given its multiple co-benefits for nutrition, income, and climate resilience.

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Droughts, gender and rural household livelihoods in the Nandom municipality, Ghana

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ABSTRACT

In a technologized 21st century, the global community is grappling with the issue of climate change, within which drought is topical and considered the most threatening component of climate change, and its impact is much felt in societies where there is heavy dependence on natural resources for survival with minimal or low coping mechanisms. Most of these societies are to be found in Africa. This study, thus, examined drought and its effects on men's and women's livelihoods among rural households in the Nandom Municipality of the Upper West Region of Ghana. The study adopted the drought identification theory. A non-experimental descriptive research design was used, allowing for the use of questionnaire administration and focus group discussions. Guides were used to solicit information from the respondents and participants. The target population was men and women in the ten communities. The questionnaire was administered to 100 women and men in the ten communities in the Nandom Municipality. The simple random sampling technique was used. Focus group discussions were held with three (3) men's groups and three (3) women's groups. The data was analyzed using the SPSS version 20 software, followed by descriptions, explanations, and narratives. The study revealed that droughts have devastating effects on the livelihood of rural households in the municipality. Thus, the rural households have to supplement their livelihoods with low-income jobs, including migrating to the southern part of the country to engage in menial jobs. Locally, households also engage in fuelwood and charcoal burning during drought periods. Non-governmental organizations (NGOs) minimally support the rural pro-poor households during the drought periods. Comparatively, women's drought stress is more severe than men's. Drought is also more severe among the aged, the illiterate, and the landless who are considered poor. Conclusively, drought is a real phenomenon in the Nandom Municipality, and it has more debilitating effects on women than men. Recommendations are the need for irrigation initiatives in the municipality and the assembly to incorporate and coordinate drought development interventions by national, international, governmental, and non-governmental organizations.

Keywords: Climate Change, Drought, Gender, Livelihoods, Rural Households

I. INTRODUCTION

Globally, drought which is now regarded as an environmental disaster has attracted scholarly attention among environmentalists, ecologists, hydrologists, meteorologists, geologists, policy makers and agricultural scientists. Drought occurs in virtually all climatic zones, such as high and low rainfall areas (Wabwire, Mukhovi & Nyandega, 2020). They went on to elucidate that those temperatures; high winds, low relative humidity timing and characteristics of rains, including distribution of rainy days during crop growing seasons, intensity and duration of rain, onset and termination of rains, climate dynamics, all play a significant role in the occurrence of droughts.

Evidentially, the negative impacts of climate change and by extension, droughts specifically are becoming increasingly alarming today (Idowu & Amara, 2024). These include long term changes in average temperatures and rainfall, changes in the intensity, timing, and geographic distribution of rainfall, an increase in the rate at which extreme events such as drought, flood and rise at the sea level (Wabwire et al, 2020). These impacts have detrimental effects on agricultural productivity, biodiversity and ecosystems. Although some crops in some regions of the world may experience gains, research predicts that the overall impacts of climate change on agriculture will be negative, threatening global food security alarmingly (Idowu & Amara, 2024).

In developing countries such as Sierra Leone (Idowu & Amara, 2024), rural households, most of whom are already food insecure are likely to experience the most severe effects of climate change and drought more directly (Wabwire et al, 2020) and are in greatest need of adaptation strategies and development assistance to cope with the changing weather patterns (Idowu & Amara, 2024). As it is, the vulnerable within these countries have the least capacity

or opportunity to prepare for the impacts of a changing climate giving their limited resources, assets and eventually their general well-being (Idowu & Amara, 2024). Giesbert and Schindler (2010), found out that better-off households typically sell assets in order to maintain their consumption and livelihoods when facing shocks. In contrast, poorer households often reduce assets and consumption simultaneously. Distress sales of assets may cause households to forego future investments in health, nutrition, and education, including children in the household.

A plethora of research by Wabwire, Mukhovi and Nyandega (2020) and Moser (2007), has shown that assets are paramount for rural households because they can help them cope better with shocks, including long term impacts of climate extremes. In examining pathways out of poverty for rural people, research on asset-based approaches to development and poverty alleviation (Moser, 2007), indicated that since the 1990s, control over assets play a fundamental role in increasing incomes, reducing vulnerability, and empowering people to move out of poverty. In the context of climate change, access to and control of assets can be particularly significant for the rural poor, where assets such as secured land and water rights, agricultural technologies, livestock, knowledge, and social capital can help individuals, both men and women, and households adapt to increasing variability of production.

The bourgeoned literature, Mao et al. (2020), have provided empirical evidence that women experience poverty and deprivation in different ways than men and can be differentially affected by shocks. Evidence also demonstrates that there are many differences in men's and women's access to and control over key assets such as land. Women usually have fewer assets and rights than men. They are more vulnerable to loss of these assets and rights due to separation, divorce, or widowhood, and have less access to capital, extension, inputs, and resources for agricultural production. Yet, women's asset holdings often have positive effects on important development outcomes including household food security and human capital formation (Awosi, Agyemang & Munkaila, 2018).

In Africa, climate change has affected the rainfall pattern such that long and more persistent drought periods are being experienced (Wabwire et al. 2020). Drought has a negative impact on agricultural activities which are the mainstay of most rural people in Africa south of the Sahara. African farmers suffer the consequences of climate change, but the rural poor are more affected because their livelihoods almost entirely depend on agricultural activities. Idowu and Amara (2024), maintained that northern Kenya experiences drought periodically which affects crop production, and that drought negatively affects livestock production among the poor in Ethiopia (Idowu & Amara, 2024).

The frequent drought periods are not only limited to Africa, south of the Saharan countries, but also in other developing countries (Wabwire, et al, 2020). Drought has become a normal phenomenon in Ghana since 1987 and it occurs at least once in every 3 years in Northern Ghana (Wabwire et al, 2020). Ghana is subjected to series of drought periods. From 1982-1983, Ghana experienced a particularly large drought followed by a less intense one in 2004. The major complaint was that the total rainfall on a yearly basis seems to not be changing significantly but, the patterns with which these storms arrive are causing the farmers distress. The rains, in recent years, are late and then when they do arrive are shorter with more intense rainstorms (Nkrumah et al., 2014; Wabwire et al, 2020).

According to the Ghana Statistical Service (2007), the Northern Regions of Ghana are more rural than the south relying heavily on farming for survival. For this reason, predicting the rains is crucial to their existence. Ghanaian precipitation patterns, however, are not easily predicted with years of drought being followed closely by years of flooding, both equally as destructive to Ghanaian crops and both leaving in a wake famine and reliance on foreign aid. In 1999 and in 2007, the Northern Region of Ghana was devastated by flooding (Nkrumah et al., 2014). The flooding in 2007 was preceded by months of drought with June and July being especially dry so that when the rains finally arrived in August, ephemeral streams occurred instead of percolation into the soil. This delay in and the heavy onset of rain washed away healthy crops and also caused a loss to those who planted too early (Nkrumah et al., 2014; Awosi, Agyemang & Munkaila, 2018).

While the frequent occurrence of drought as a result of climate change is well documented, the effects of drought on rural households and among women and men have not been well documented (Idowu & Amara, 2024). According to Nkrumah et al., (2014), the lives of the people of Lawra District, of which the Nandom District was part, before and after the 2007 droughts seems to suggest a downward trend in the general well-being and depletion of the assets of the inhabitants. This should be a subject for academic interrogation.

Presently, rural communities in the developing areas of the world have been victims and are challenged with insufficient infrastructure and social services due to harsh economic and climatic conditions. Wabwire et al. (2020) have since noted that Northern Ghana, which is largely rural in nature experienced persistent harsh economic conditions. There is notable poverty in the five (5) regions of the north (notably, Northern, Upper East, Upper West, Savannah and North East Regions) as a result of limited resources and economic opportunities. This situation has contributed to a continuous migration of the labour force of the north to the southern parts of Ghana such as Accra and Kumasi (Awosi, Agyemang & Munkaila, 2018). The net-migration of male labour from the northern regions in 1960 stood at -89,000. Food insecurity is also a problem as rural poverty increased from 37% in 1998/99 to 50% in 2005/06 with Upper West recording the highest incidence of poverty from 84% in 1998/99 to 88% in 2005/06 (Ghana Statistical Service, 2007; Wabwire et al, 2020).

Low level of education (Adatuu, 2017; Adatuu et al, 2021) is one of the problems that exacerbate the development gap between the north and southern part of Ghana. As of 1998, a greater percentage of residents (80%) of rural northern Ghana were non-literates with Northern Region recording the lowest rural literacy rate of 8.9%, followed by Upper East with 12.4% and Upper West with 15.2%. Compared to Volta, Eastern and Western Regions which had a rural literacy rate of 55.7%, 51.9% and 51.4% respectively, it is clear that northern Ghana lags far behind other regions in education (Adatuu et al, 2021).

The notable industry that has engaged majority of the youth and the general populace in the northern parts of Ghana is the agricultural industry mainly due to the abundance of arable land (Food and Agriculture Organization, 2006; Adatuu et al, 2021). It is a clear potential and offer many opportunities to the people of the north, men and women alike, and Ghana as a whole. The agricultural industry that has always been underexploited has suffered the low potential of supporting the economic growth of the north and the subsequent arrest of the food insecurity across the country especially during the lean season when almost all food stuffs become scarce across the West African sub-Region (Wabwire et al, 2020).

The agricultural industry is an energy driven industry. Large quantities of energy, time, water, financial resources and physical exhaustion are highly expensed in the agricultural processes (FAO, 2006). The farming processes are inefficient leaving farmers with substantial annual losses due in part to inadequate rains as a result of the erratic climate dynamics coupled with the conspicuous absence of irrigation dams across the five regions of the north. As a result, basic human needs such as clean water, education, health, etc, are hardly being met in many rural communities (GSS, 2007; Awosi, Agyemang & Munkaila, 2018; Adatuu et al, 2021). It is expedient therefore to examine whether drought has any effect on the rural dwellers in the first place and to discover which gender suffer most of the effects. This will help craft or design possible management strategies/tools and innovations that could be adopted for the improvement of the lives of men and women as well as the vulnerable in Nandom and other similar rural areas in the north.

1.1 Research Objectives

- i. To find out how drought affects the livelihoods of men and women in rural households in the Nandom Municipality of the Upper West Region.
- ii. To examine the coping strategies adopted by rural households during drought periods in the Nandom Municipality.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Drought Identification Theory

This study is hinged on Yevjevich's (1967), drought identification theory. Yevjevich (1967), proposed a theory for identifying drought parameters and investigating their statistical properties such as (a) duration, (b) severity and (c) intensity. The most basic element for deriving these parameters is the truncation or threshold level, which may be a constant or a function of time. A run is defined as a portion of time series of drought variable X_t , in which all values are either below or above the selected truncation level of X_0 . Accordingly, it is called either a negative run or a positive run. Yevjevich (1967) and Awosi, Agyemang and Munkaila (2018), stated that various statistical parameters concerning drought duration, magnitude and intensity at different truncation levels are much useful for drought characterization.

A drought event has the following major components (a) drought initiation time (t_i) which is the starting of the water shortage period that indicates the beginning of a drought, (b) drought termination time (t_e) which is the time when the water shortage becomes sufficiently small so that drought conditions no longer persist, (c) drought duration (D_d), expressed in years/months/weeks, etc., during which a drought parameter is continuously below the critical level (Awosi, Agyemang & Munkaila, 2018). In other words, it is the time period between the initiation and termination of a drought. In (d) drought severity (S_d), indicates a cumulative deficiency of a drought parameter below the critical level and (e) drought intensity (I_d), which is the average value of a drought parameter below the critical level. It is measured as the drought severity divided by the duration (Awosi, Agyemang & Munkaila, 2018). This theory has thus, been applied in several drought models and analyzes (Awosi, Agyemang & Munkaila, 2018; IDMC, 2011).

The theory is therefore, good for assessing the impact of drought on the livelihood of rural households in the Nandom Municipality of the Upper West Region of Ghana because it helped the researchers to identify the various drought parameters that took place within which include the drought intensity, its duration, severity and spatial extent (Awosi, Agyemang & Munkaila, 2018).

2.2 Empirical Review

2.2.1 How Drought Affects the Livelihoods of Men and Women in Rural Households

Drought as a climatic concept produces a complex web of effects that span many sectors of the society, including the economy. According to Awosi, Agyemang and Munkaila (2018), droughts are a widespread phenomenon since about half of the earth's terrestrial surfaces are susceptible to them. Droughts as a natural hazard have had the greatest negative impact on human life within the 20th and 21st centuries (Awosi, Agyemang & Munkaila, 2018). In recent years, large scale intensive droughts have been observed on all continents, affecting large areas in Europe, Africa, Asia, Australia, South America, Central America, and North America (Wabwire, et al, 2020) and high economic and social costs have led to increasing attention to droughts. The impact of droughts on different continents around the globe is now being discussed (Wabwire et al, 2020).

Ghana is subjected to series of drought periods. From 1982-1983, Ghana experienced a large drought followed by a less intense one in 2004. The major complaint was that the total rainfall on a yearly basis seemed not to be changing causing farmers' distress. The rains in recent years are late and then when they do arrive are shorter and more intense (Nkrumah et al., 2014).

The Northern Regions of Ghana unlike those in the south are more rural and rely heavily on farming for survival (Adatuu, 2017). For this reason, predicting the rains is crucial to their existence. Ghana's precipitation patterns are not easily predicted with years of drought being followed closely by years of flooding, all of which are equally as destructive to crops and leaving in their wake, famine and reliance on foreign aid (Nkrumah et al., 2014). In 1999 and in 2007, the Northern Regions of Ghana were devastated by flooding. The flooding in 2007 was preceded by months of drought with June and July being especially dry so that when the rains finally arrived in August, ephemeral streams occurred instead of percolation into the soil. This delay in and the heavy onset of rain washed away healthy crops and also caused a loss to those who planted too early (Nkrumah et al., 2014; Awosi, Agyemang & Munkaila, 2018).

The Nandom Municipality, like other Municipalities/districts of the region, depicts a typical rural economy dominated by the agricultural sector with the commerce and industrial sectors least developed. Agriculture alone accounts for about 86% of the labour force while commerce/service and industry account for 13% and 1% respectively (Nandom Municipal Assembly, 2024). The main farming and cropping systems in the Nandom Municipality are mixed farming and cropping.

According to Nkrumah et al., (2014) and Awosi, Agyemang and Munkaila (2018), the lives of the people of Nandom Municipality before and after 2007 and subsequent droughts seemed to suggest a downward trend in the general well-being of the inhabitants. People in the Nandom Municipality also lamented over the 2011/2012 droughts that had many devastating impacts in their lives. Farmers were worried as food crops were withering since agriculture is the mainstay of the people (Awosi, Agyemang & Munkaila, 2018).

Men and women are affected differently based on varying contexts of vulnerability. The general observation is that women are often more negatively affected than men (Awosi, Agyemang & Munkaila, 2018). Even if men are more negatively impacted by drought, they own land and other assets (Awosi, Agyemang & Munkaila, 2018; Wabwire et al, 2020).

2.2 Coping Strategies of Rural Households during Drought Periods

Adaptation to drought and other components of climate change includes all adjustments in behaviour or economic structure that reduce the vulnerability of society to changes in the climate system. Adaptation takes place at all levels, from changes in global systems through changes at national or regional levels to adaptations made by local communities and individuals. The development of adaptation strategies needs to recognize this and define the appropriate mix of actions at these different levels (Ghana Meteorological Services Department, 2014; Awosi, Agyemang & Munkaila, 2018; Wabwire et al, 2020).

One key role for adaptation and the reduction of such vulnerabilities hold according to Awosi, Agyemang and Munkaila (2018), is the diversification of livelihoods. The diversification of rural livelihoods is defined as the process by which rural households construct an increasingly diverse portfolio of activities and assets in order to survive and to raise their standard of living (Wabwire et al, 2020). The increase of a livelihood portfolio, in other words: the attempt to multiply the sources of income like off-farm labour, remittances from migration stays, etc., might be an outcome of a livelihood adaptation process, but diversification is not necessarily the only way of adaptation. Intensification, which refers to existing income sources that are used more intensively to guarantee a higher income, is another option.

III. METHODOLOGY

The Nandom Municipality constitutes one of the eleven districts and Municipalities in the Upper West Region of Ghana. It was established by a Legislative Instrument 2105 and elevated to the status of a Municipal on January, 2020. The main economic activity in the area is agriculture with an overwhelming majority of 85% of the population engaging in it. The main produce from agriculture are livestock and crops done on the basis of subsistence production with low output (Nandom Municipal Assembly, 2024).

A non-experimental descriptive research design was adopted and used. This was done to enable the researchers to use a mixed method in the data gathering process. That to say that it enabled the researchers to use both quantitative and qualitative approaches and tools to gather the data (Bryman, 2016). A simple random sampling technique was used to select 10 rural communities thus given each rural community an equal opportunity to be part of the study in the Municipality. These communities were Brutu, Danko, Kogle, Toyaga, Biiregangn, pofien Naadegaun, Munyupeli, Piiri, Basebele, Duotange. Ten households were then randomly selected from each community. It gave opportunity to access responses from different categories of rural poor people with different livelihood activities being affected by drought and hence varied coping strategies. The estimated total population for the Municipality according to the Ghana Statistical Service 2021 Population and Housing Census was 46,040 people, with an average number of persons per household (household size) estimated as 7 (Nandom Municipal Assembly, 2024). This gives an estimated 6,577 households representing the sample frame. The sample size is obtained using the mathematical formula below;

$$\text{Formula: } n = \frac{N}{1 + N(\alpha)^2}$$

Where n = sample size, N = sample frame (6,577) and α represents the margin of error which is 0.1 with a confidence interval of 90%.

$$\text{By substitution, Formula} = \frac{6,577 \frac{14418}{1+14418(0.1)^2}}{1+6,577(0.1)^2} = 99.5 = 100$$

Hence, the sample size for the survey is 100 individual respondents. Justifiably, the sample size chosen was highly dependent on the stipulated period of time, the size of the Municipality, the number of communities, the estimated number of households in rural communities in the area.

Purposive sampling technique was used to select the respondents for the KIIs and FGDs. This was done because the respondents were deemed to be knowledgeable in the study area and hence, their inclusion in the study. The data was analyzed using qualitative and quantitative techniques. The qualitative analysis took the form of descriptive narratives involving discussions on the data gathered from the district. This entailed the coding of the data and drawing out themes according to the research questions. The Statistical Package for Social Sciences (SPSS 20) software was used to facilitate the generation of tables and figures. This was followed by descriptive explanations and narratives of the tables and figures.

The study adopted a non-experimental descriptive research design using a combination of questionnaire, key informant interview (KI) guide and focus group discussions (FGDs). The questionnaire was administered to 100 individuals in 100 households. Fifty-six (56) of the respondents were women while forty-four (44) were men. This was done because the population of the women was more than the men and hence, the need to give the women more representation. The questionnaire was used to solicit information from the respondents on issues of economic activities, time spent on both productive and reproductive activities during drought periods and non-drought periods, coping strategies, vulnerability levels, the effects on men on the one hand and women on the other. It also examined the coping mechanisms of the respondents.

Three (3) Key informant interviews were conducted with key leaders of the Ministry of Agriculture in the Nandom Municipality. The study gathered data on trends of crop production and animal population in the district for the analogy of the yield levels of livelihood activities of most of the rural households in order to establish a relationship between output of livelihood activities and the vulnerability levels of rural dwellers in the district. One key informant interview was also conducted with the Ghana Meteorological Service Department in Wa. The key informant interview (KII) yielded information on rainfall and temperature figures from the region and district in order to determine the trend in the influence of those factors on the major livelihood activities as well as the adaptive capacities of rural poor in the Municipality. This enabled in soliciting information based on in-depth knowledge, experience or record of intervention on climate change issues and livelihood promotion in the district.

Two (2) focus group discussions (FGDs) sessions were conducted with married women, men and with single women separately. This brought to a total of six (6) focus group discussions. Women were separated from men to make the women comfortable to speak out issues without being shy or fearful of their men counterparts. Each focus group discussion session was conducted with six to ten participants. All the participants were at least twenty (20) years old. The FGDs were conducted based on the questions contained in the questionnaire to enable the study crosscheck the

information obtained from the questionnaire. The data was analyzed using the SPSS version 20 software followed by descriptions, explanations and narratives

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 How Drought Affects the Livelihoods of Rural Households

The main household occupation of the people of Nandom is farming (61%) with few of them engaging in trading (23%), government work (7%) and other livelihood supporting activities such as pito brewing, handicraft, carpentry, masonry comprising of 9%. A closer look at the gender disaggregated figures revealed that most of the people who indicated that they are farmers are men. Of the 44 men respondents, 34 (34%) are into farming as a main occupation, 7 (7%) are engaged in trading while 3 (3%) are government workers. This contrasts sharply with the female respondents who have 27 (27%) of them engaged in farming, 16 (16%) in trading, 4 (4%) being government workers and 9 (9%) into others activities to earn a living. This is in line with the Nandom Municipal Assembly's composite budget (see Nandom Municipal Assembly (2024). The Assembly stated that the economic mainstay of the people of the area is agricultural production normal done on subsistent basis. The rest of the population engage in gainful employment and other income generating activities.

About 46% of the respondents collect natural assets/capital such as land, water, livestock, trees etc. They said natural capital serves as the bedrock to their survival and well-being since farming is the main occupation of the area. Others, though indicated that they collect physical (23%), 16% of them collect human/social capital, few (15%) collect financial capital. These findings are also in tandem with the Nandom Municipal Assembly (2024) composite budget that the livestock is one of the main agricultural activities undertaken in the area. The findings are also confirmed by Adatuu et al (2021), which noted that the Northern Regions of Ghana unlike those in the south are more rural and rely heavily on agriculture for survival.

Ninety percent of the respondents said it was very difficult to collect the assets mentioned above during drought periods. The rest, that is 10% said it was difficult to do same in such periods. The bottom line here is that it is not easy to collect these valuable assets (natural, physical, financial and social capital) during drought periods. However, they were quick to add that it was not very difficult gathering these same assets during non-drought periods.

On the main effects of droughts on rural household livelihoods, sixty-five percent of the respondents indicated that the drought periods affect their livelihoods negatively as poverty gets worsen and standard of living reduces. Farming which is the main occupation of the people comes to a standstill with the onset of the drought since irrigational facilities are unavailable for dry season farming. Respondents said they have to sell off assets to maintain diet levels and majority (65%) of them who did not have assets to sell go impoverished.

This aligns with studies by Nkrumah et al., (2014) and Awosi et al. (2018), who observed that droughts affected the people of the Municipality some years back. They noted that people in the Nandom Municipality lamented over the 2011/2012 droughts that had many devastating impacts in their lives. Farmers were worried as food crops were withering since agriculture is the mainstay of the people. This is also well captured in the Ghana Daily Graphic Newspaper, May 19, 2006 page 11. Table 1 shows how droughts affected the livelihoods of the people of the Nandom Municipality.

Table 1

How Drought Affects the Livelihoods of Respondents

Effects of Drought	Frequency	Percent
Decrease standard of living	2	2.6
Inability to feed	1	1.3
Increased poverty level	46	59.0
Low standard of living	19	24.4
Worse standard of living	1	1.3
Worsen poverty level	9	11.5
Total	78	100.0

The respondents said their livelihood activities either become poorly resilient (39%) or not resilient (60%) as indicated in Table 1. When asked if they had any future drought risk management/investment plan for their households, they answered in totality was in the negative and that they either rely on family relations or household reserves.

The above is in line with the studies of Wabwire et al. (2020), that in developing countries in rural households, many of whom are already food insecure, are likely to experience the most severe effects of climate change and drought more directly and are in greatest need of adaptation strategies and development assistance to cope with the changing

weather patterns (Awosi et al, 2018). As it is, the vulnerable within these countries who have the least capacity or opportunity to prepare for the impacts of a changing climate giving their limited resources, assets and eventually their general well-being.

About 59 percent of the respondents indicated that they did no work during drought periods. However, 41 percent of them said they did minor jobs such as pito brewing, petty trading, hairdressing and seamstress in the case of married and single women whereas carpentry, masonry, or travel to the cities to look for menial jobs is in the case of married and single men. Most of the respondents said in a focus group discussion that the drought period really leaves them with no choice than to engage in this kind of little reward jobs.

Trading (19%) is the major type of work done during drought periods in the Nandom Municipality of the Upper West Region. Apart from the trading, and other menial jobs (38.1%) done, 16.7% of respondents travel to other places such as Accra and Kumasi in such of jobs. This confirms the findings of the Ghana Statistical Service (2007) which noted that there is notable poverty in the five (5) regions of the north (notably, Northern, Upper East, Upper West, Savannah and North East regions) as a result of limited resources and economic opportunities. This situation has contributed to a continuous migration of the labour force of the north to the southern parts of Ghana such as Accra and Kumasi. Wabwire et al. (2020), equally found the net-migration of male labour from the northern regions in 1960 to stand at -89,000.

The sex disaggregated figures shows that it's the women (26% out of 42%) who work during drought periods as against their male (16% of 42%) counterparts. The few men who actually work during drought only travel to the cities in such of menial jobs.

4.1.2 Effects of Droughts on Men and Women's Rural Households

During focus group discussion, women reported spending more hours working (reproductive and productive) daily than men, both during drought and non-drought periods. Single and married women spent between 12-15 hours working during non-drought periods, while men spent only 7-10 hours working during same period. Men spent fewer hours working during drought periods than non-drought periods. Thus, in drought periods, men spent only 4-6 hours working daily compared to 6-10 hours during non-drought periods. However, the situation is different for women.

This makes drought periods more stressful to women more than men. This is in line with Awosi (2018), studies that drought affected women more than men. According to them, the general observation is that women are often more negatively affected than men. Even if men are more negatively impacted by drought, they own land and other assets (Quisumbing et al, 2011). This implies that women than men suffer from drought. Particularly, Awosi (2018) and Wabwire et al. (2020) noted that even if men are more negatively impacted by drought, they have assets such as land and other assets.

Women spent more hours engaging in reproductive and productive work during drought periods. Single and married women spent between 13-16 and 12-15 hours respectively, working daily to support their households during drought periods. In a nutshell, it was reported that the coping strategies adopted by rural poor during drought period has a greater impact on their workloads. However, women's workloads are more compounded during drought periods as compared to their men counterparts.

As also stated in the bourgeoned literature (Mao et al, 2020; FAO, 2011; Idowu & Amara, 2024), empirical evidence shows that women experience poverty and deprivation in different ways than men and can be differentially affected by shocks. Evidence also demonstrates that there are many differences in men's and women's access to and control over key assets such as land. Women usually have fewer assets and rights than men. They are more vulnerable to loss of these assets and rights due to separation, divorce, or widowhood, and have less access to capital, extension, inputs, and resources for agricultural production (Wabwire, Mukhovi & Nyandega, 2020).

4.1.3 Coping Strategies of Rural Households during Drought Periods

Men and Women's coping mechanisms among rural households during droughts in the Nandom Municipality. Eight four percent of respondents said they rely on family relatives to survive during drought periods. 5% who were mostly government workers seek external support in the form of loans. Also, 3% and 7% of the respondents rely on household reserves and other livelihood supporting activities like mason, migrate to cities, petty trading, and travel to cities respectively. Table 2 depicts the coping mechanisms during droughts in the Nandom Municipal.

Table 2*Coping Mechanisms during Drought*

Copying Strategy	Frequency	Percent
Rely on relatives	84	84.0
Seek external support	5	5.0
Rely on household reserves	3	3.0
Seek divine intervention	1	1.0
Others	7	7.0
Total	100	100.0

As captured in Table 2, the respondents' representing 70.5 percent said their poverty level increases as the drought situation in the study area changes (worse). Similarly, 28.3 percent also drought changes bring about low standard of living whilst 1 percent said she finds it difficult to feed during changes in drought periods over the years. The findings resonate the studies of (Awosi, Agyemang & Munkaila, 2018). The author noted that droughts worsen the living conditions of people living in rural areas. It affects both men and women alike.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

It was established that the men and women collect and value most natural assets/capital such as land, water, livestock, trees, etc. However, this was difficult for them during drought periods. Also, households in the Nandom Municipality rely on family relatives to survive during drought periods. The few privileged government workers seek external support in the form of loans. Others also rely on sales of household reserves and other livelihood supporting activities like masonry, petty trading or migrate to the big cities such as Accra and Kumasi in search of menial jobs. Limited support is received from NGOs and other sources.

The main economic activity of married and single women in Nandom is farming, petty trading, seam stressing and hairdressing, while married and single men engage in farming, carpentry and masonry. During drought periods, almost all the women engage in more than one economic activity to help meet the basic needs of their households: they engage in petty trading, seam stressing, or hairdressing. During drought periods, they also go to the farm areas to collect firewood which is used to boil water for cooking and bathing (especially during harmattan) which make them comparatively to men, suffer more from drought stress.

5.2 Recommendations

Although there has been gradual effort to improve livelihood interventions and strategies by government, non-governmental organizations and agencies especially on agriculture. However, the lack of major irrigational facilities in the Nandom Municipality to ensure an all-year round farming leaves the rural households with worsening living conditions. The study therefore, recommends that many irrigation projects should be setup in the Nandom Municipality to ensure and all-year round farming.

The Municipal Assembly should also incorporate drought occurrence into their Medium-Term Development Plan. It should also promote the coordination of relief and livelihood support initiatives both from government and non-governmental organizations.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Integrating agribusiness and climate-smart agriculture: A global bibliometric review

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ABSTRACT

This study presents a bibliometric analysis of global research on the integration of agribusiness practices and climate-smart agriculture (CSA) from 2010 to 2024. A total of 118 peer-reviewed articles indexed in Scopus were analyzed using VOSviewer, Biblioshiny, and Gephi to examine research trends, intellectual structure, and thematic evolution. The field progressed through three phases: conceptual emergence from 2014 to 2016, rapid expansion from 2017 to 2021, and consolidation from 2022 to 2024, with a compound annual growth rate of 40.7 percent during the expansion period. Six dominant thematic domains were identified: resilience and adaptation, adoption and implementation, value chains and markets, policy and governance, financing and investment, and technology and innovation. Despite growing scholarly attention, 66.9 percent of studies remain at early stages of integration, indicating a persistent implementation gap. Network analysis reveals fragmentation between technological innovation and financial and governance mechanisms. This study proposes a CSA Agribusiness Integration Maturity Model and a multidimensional framework grounded in resilience, innovation, governance, and sustainable finance. Comparative benchmarking demonstrates distinct thematic trajectories relative to the broader CSA literature. The findings emphasize the need to conduct regionally inclusive and equity-driven research, particularly in Latin America and Southeast Asia, and provide policy-relevant insights for accelerating CSA mainstreaming within agribusiness value chains.

Keywords: Agribusiness, Bibliometric Analysis, Climate-Smart Agriculture, Integration Maturity, Value Chains

I. INTRODUCTION

Climate change represents one of the most significant structural challenges confronting global agricultural systems. Rising temperatures, erratic rainfall patterns, prolonged droughts, flooding events, soil degradation, and increasing pest and disease pressures continue to reshape production environments across regions. These disruptions threaten agricultural productivity, rural livelihoods, and long-term food security, particularly in vulnerable contexts where adaptive capacity remains constrained (Kalele et al., 2021; Musafiri et al., 2022). In response to these pressures, Climate Smart Agriculture has emerged as an integrative framework that seeks to enhance productivity, strengthen resilience, and reduce greenhouse gas emissions while promoting sustainable development outcomes (Ma and Rahut, 2024; Okolie et al., 2022). Since its introduction in 2010, CSA has evolved into a widely adopted research and policy agenda that attracts sustained scholarly attention.

Although CSA scholarship has expanded rapidly, much of the literature has focused on farm level adaptation practices, technological uptake, and biophysical efficiency improvements. These contributions have generated valuable insights into adoption determinants, adaptive capacity, and mitigation potential. However, agricultural production operates within complex commercial systems that extend beyond individual farms. Contemporary food systems are structured through agribusiness networks that encompass input provision, aggregation, processing, logistics, certification, financing, and retail distribution. These actors influence production decisions, resource allocation, risk management strategies, and market access conditions. Agribusiness systems therefore play a central role in shaping incentives that determine whether climate smart practices are sustained and scaled.

Recent studies increasingly acknowledge the importance of market access, financial services, institutional arrangements, and knowledge systems in facilitating CSA uptake (Makamane et al., 2023; Erick et al., 2025). Nevertheless, the conceptual integration between agribusiness and CSA remains uneven. In many instances, climate smart principles and commercial agricultural systems have been examined in parallel rather than as structurally interconnected domains. Determinants of adoption have been identified, yet limited attention has been directed toward understanding how climate smart objectives become embedded within routine agribusiness operations, investment decisions, governance structures, and value chain coordination mechanisms. This separation constrains the ability of existing scholarship to inform systemic transformation across agricultural markets.

Furthermore, the rapid expansion of research at the intersection of agriculture, sustainability, and climate change has produced a dispersed body of literature. Bibliometric analyses of general CSA scholarship have documented increasing thematic diversification and accelerating publication trends (Okolie et al., 2022; Manyike et al., 2025). However, these reviews have not explicitly examined how agribusiness perspectives reshape thematic structures, institutional participation, or research maturity within the CSA domain. Consequently, limited clarity exists regarding whether agribusiness-oriented CSA research follows distinct growth trajectories, exhibits different collaboration patterns, or demonstrates deeper operational integration compared to the broader CSA field. Without systematic mapping of this interface, structural gaps and fragmentation are likely to persist.

This study addressed this limitation through a systematic bibliometric and thematic assessment of global research examining the integration of agribusiness practices and climate smart agriculture from 2010 to 2024. Rather than merely documenting publication trends, the study conceptualized the agribusiness and CSA nexus as an emerging intellectual domain whose structural coherence and integration depth required systematic evaluation. It advanced three principal contributions. First, it delineated substantive integration between agribusiness and CSA from superficial co occurrence of climate and market terminology. Second, it introduced the CSA and Agribusiness Integration Maturity Model as a structured framework for evaluating integration depth within existing scholarship. Third, it conducted comparative benchmarking against general CSA literature to determine whether the inclusion of agribusiness perspectives generated distinct thematic complexity, institutional concentration, and maturity patterns.

The analytical lens guiding this assessment draws upon resilience theory, innovation diffusion perspectives, governance and institutional frameworks, and sustainable finance concepts (Chambers and Conway, 1992; Folke et al., 2016; Rogers, 2003; Gereffi et al., 2005). These theoretical domains provide complementary insights into how climate smart principles transition from conceptual recognition to operational integration and systemic transformation within commercial agricultural systems. Through this structured examination, the study provides an evidence-based foundation for strengthening research coherence, enhancing interdisciplinary engagement, and accelerating the mainstreaming of climate smart agriculture within agribusiness value chains.

The remainder of this paper is organized into five sections. Section II reviews the relevant literature and outlines the theoretical foundations that inform the analysis, including resilience, innovation, governance, and sustainable finance perspectives. Section III explains the methodological approach, detailing the data sources, search strategy, screening procedures, bibliometric techniques, and the operationalization of the CSA and Agribusiness Integration Maturity Model. Section IV presents the empirical findings and discusses publication trends, institutional contributions, thematic configurations, integration maturity distribution, network topology, and comparative benchmarking with the broader CSA literature. Section V concludes the paper and offers research and policy recommendations for advancing the integration of climate smart agriculture within agribusiness systems.

1.1 Research Questions

To support this analysis, this study adopted a multidisciplinary lens grounded in resilience, innovation, governance, and sustainable finance, as elaborated in the Theoretical Framework section below. These theoretical domains frame the conditions under which agribusiness systems engage with CSA to produce either incremental or transformative changes. Accordingly, this study is guided by four research questions: (1) How do growth patterns, institutional authorship, and geographic distribution in agribusiness and CSA research differ from general CSA literature? (2) Do incorporating agribusiness perspectives generate distinct thematic and conceptual structures? (3) At what stages of integration maturity do the current research cluster and what transitions are required for systemic transformation? (4) What research priorities, partnerships, and methodological innovations can accelerate the integration of CSA and agribusiness?

These research questions are addressed through specific analytical methods: RQ1 is addressed through publication trend analysis and geographic mapping; RQ2 through keyword co-occurrence analysis and thematic coding; RQ3 through the Integration Maturity Model classification; and RQ4 through structural gap analysis and comparative benchmarking with the general CSA literature.

II. LITERATURE REVIEW

2.1 Theoretical Review

A synthesis of the reviewed literature reveals that the nexus between agribusiness practices and climate smart agriculture (CSA) is underpinned by a convergent set of theoretical perspectives that frame how climate smart principles are conceptualized, operationalized, and scaled within commercial agricultural systems. Rather than emerging from a single disciplinary tradition, this body of scholarship draws on resilience and adaptive capacity theories, innovation diffusion theories, governance and institutional theories, and sustainable finance and systems transformation perspectives (Chambers and Conway, 1992; Folke et al., 2016; Rogers, 2003; Gereffi et al., 2005; Geels, 2002; Baker et al., 2018).

Across the reviewed studies, resilience-oriented frameworks, most notably the Sustainable Livelihoods Framework (Chambers and Conway, 1992) and Climate Resilience Theory (Folke et al., 2016), are frequently used to explain how agribusiness actors manage climate risk, enhance adaptive capacity, and sustain productivity under environmental stress. Complementing this, innovation-focused theories such as the Diffusion of Innovations (Rogers, 2003) and the Agricultural Innovation Systems approach (Hall et al., 2006) dominate analyses of how CSA technologies and practices are generated, diffused, and adopted through agribusiness networks, often highlighting the intermediary role of firms, markets, and extension systems.

Governance and institutional theories further structure the literature by explaining how CSA principles are embedded within commercial value chains through standards, contracts, certification schemes, and regulatory environments (Gereffi et al., 2005; North, 1990; Scott, 2001). More recent studies have increasingly invoked Sustainable Finance Theory (Baker et al., 2018) and sustainability transition theory (Geels, 2002) to examine how ESG-aligned investments, blended finance mechanisms, and regime-level shifts enable CSA to move beyond isolated adoption toward system-wide transformation. Collectively, the literature demonstrates that these theories are complementary rather than competing, jointly shaping the scholarly understanding of how agribusiness systems engage with climate smart agriculture across multiple scales.

III. METHODOLOGY

3.1 Data Source and Search Strategy

This study employed a systematic bibliometric approach to map and synthesize global research addressing the nexus between agribusiness practices and climate-smart agriculture (CSA). The Scopus database was selected as the primary data source because of its extensive coverage of peer-reviewed journals, strong citation indexing capabilities, and broad representation of the agricultural, environmental, and social science literature (Baas et al., 2020). The search covered publications from 2010 to 2024, capturing the period from the introduction of the CSA concept by the Food and Agriculture Organization to the most recent available literature. An inclusive Boolean search string was applied to titles, abstracts, and keywords within Scopus:

TITLE-ABS-KEY ("climate-smart agriculture" OR "CSA") AND ("agribusiness" OR "value chain" OR "market" OR "private sector" OR "input supply" OR "agricultural finance" OR "food systems") AND PUBYEAR > 2009 AND PUBYEAR < 2025.

To ensure analytical consistency and quality, the search was restricted to peer-reviewed articles published in English. Non-article document types, including conference proceedings, book chapters, editorials, reviews, and gray literature, were excluded.

3.2 Inclusion and Exclusion Criteria

Study selection followed the PICOC framework (Population, Intervention, Comparison, Outcome, Context) to ensure transparency and methodological rigor. The included studies were required to explicitly address both agribusiness actors or systems and climate-smart agriculture practices or principles. Eligible articles presented empirical findings, conceptual frameworks, or systematic analyses, and were published as peer-reviewed journal articles in English with full-text availability. Studies were excluded if they focused solely on agribusiness without engaging with CSA, or exclusively on CSA without explicit reference to agribusiness or market-oriented dimensions. Grey literature, including policy briefs, technical reports, and working papers, as well as non-research formats, such as editorials and book chapters, were also excluded to maintain a consistent analytical scope.

3.3 Screening and Selection Process

The article identification and screening process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines to ensure transparency and reproducibility (Donthuthu et al., 2021). The initial database search yielded a total of 347 articles. After removing 41 duplicate records, an additional 91 articles were

excluded based on document type and language filters. The remaining 215 articles underwent title and abstract screening, of which 41 were excluded for failing to meet the inclusion criteria. Full-text screening was subsequently conducted on 174 articles, resulting in the exclusion of 56 that lacked substantive integration between agribusiness and CSA. This systematic process produced a final dataset of 118 articles that were included in the bibliometric and thematic analyses. The complete selection pathway is illustrated in the PRISMA flow diagram (Figure 1).

3.4 Data Extraction and Processing

Bibliographic data for the 118 selected articles were exported from Scopus in the BibTeX and CSV formats. The extracted information included author names and affiliations, institutional addresses and countries, publication year, source journal, article titles and abstracts, author keywords and indexed keywords, reference lists, and citation counts. Data cleaning and harmonization were performed using Microsoft Excel. Author names were standardized to resolve inconsistencies in spelling and initials, and institutional names were harmonized to ensure uniform representation; for example, by consolidating abbreviated and full institutional titles. Country affiliations were verified for multi-institutional publications and missing bibliographic fields were checked for completeness. Original author keywords were preserved, and a standardized keyword set was developed to support co-occurrence analysis.

3.5 Bibliometric Analysis Tools and Procedures

Bibliometric analysis combines performance analysis and science-mapping techniques, using multiple complementary tools. VOSviewer version 1.6.19, as well as keyword co-occurrence networks, was used to construct and visualize co-authorship networks at the author and institutional levels. Association strength normalization was applied with a resolution parameter of 1.0, and a minimum cluster size of five to balance analytical inclusiveness with visual clarity. The Bibliometrix R package version 4.1.4, accessed through the Biblioshiny interface, was employed to calculate publication trends, annual growth rates, author productivity indicators, and journal source distributions using Bradford's law. Network topology analysis was conducted using Gephi version 0.10 to compute structural metrics such as betweenness centrality, clustering coefficients, and structural holes, enabling deeper insight into collaboration patterns and knowledge integration dynamics (Burt, 1992). Microsoft Excel supported the descriptive statistics and custom visualizations.

3.6 Integration Maturity Classification

To operationalize the CSA–Agribusiness Integration Maturity Model, each of the 118 articles was classified according to the depth of integration between agribusiness and CSA. A structured coding protocol guided the classification into four stages. Stage 1 (Parallel Development) included articles that address CSA and agribusiness as conceptually separate domains with no explicit linkage between them. Stage 2 (Strategic Alignment) encompassed studies that recognize the relevance of integrating CSA and agribusiness but do not operationalize this integration in practice-oriented terms. Stage 3 (Operational Integration) captured research examining how climate smart principles are embedded within routine agribusiness operations, supply chains, or business processes. Stage 4 (Systemic Transformation) included studies that analyse or propose fundamental reconfigurations of value chains, governance systems, and investment models around climate smart objectives.

Two researchers independently coded all the articles using a standardized assessment sheet. Disagreements were resolved through discussion, and inter-rater reliability was assessed using Cohen's kappa coefficient, yielding a value of 0.78, which falls within the "substantial agreement" range (0.61–0.80) according to the widely used benchmark proposed by Landis and Koch (1977). Borderline cases, particularly those between Stages 2 and 3, were resolved through joint review of the article's methodology and findings sections, with classification determined by whether the study presented evidence of CSA practices embedded within agribusiness operations or merely acknowledged such potential. This procedure ensures consistency and reliability when applying the maturity framework to the dataset.

3.7 Comparative Benchmarking

To contextualize the findings within the broader CSA literature, this study conducted comparative benchmarking against three recent bibliometric reviews. These included Okolie et al. (2022), which analyzed 892 CSA-related publications; Manyike et al. (2025), which examined 1,247 articles; and Erick et al. (2025), which focused on CSA adoption research. This comparison enabled the assessment of whether agribusiness-integrated CSA research exhibited distinct patterns in thematic focus, geographic distribution, collaboration structures, and theoretical orientation.

Thematic Analysis: In addition to quantitative bibliometric mapping, qualitative thematic analysis was conducted across the entire dataset. An inductive coding approach was applied, based on the article's objectives, methodologies, and findings. This iterative process resulted in the identification of six major themes and 24 sub-themes that characterized research at the agribusiness–CSA interface. Each article was coded for both primary and secondary

themes using a structured excel-based matrix. A cross-theme analysis was then performed to identify thematic overlaps, complementarities, and emerging research fronts.

3.8 Quality Assurance and Limitations

Several measures were implemented to ensure analytical rigour and reproducibility. Ten percent of the articles were randomly selected for the verification of thematic coding consistency. The bibliometric indicators generated by VOSviewer and Bibliometrix were cross-validated, and all analytical parameters and decisions were documented. The raw data files and coding matrices were preserved to ensure transparency. Despite these measures, certain limitations should be acknowledged. Reliance on a single database (Scopus) may exclude relevant studies indexed in Web of Science, CABI, or regional databases. The English-language restriction limits the representation of regional scholarship published in other languages, and the exclusion of gray literature may omit practice-oriented insights. Importantly, geographic analyses in this study are based on author institutional affiliations rather than on the locations where research was conducted. This distinction is significant because research about a particular region may be published by authors based in institutions elsewhere, potentially overrepresenting countries with strong research infrastructure (such as the United States and the Netherlands) while underrepresenting regions where field research occurs but is published through externally affiliated authors. A dual analysis comparing authorship location with actual study location was not feasible with the available Scopus metadata, but future studies should consider this approach where possible. Nevertheless, the methodology provides a systematic and reproducible foundation for mapping knowledge at the intersection of agribusiness and climate smart agriculture.

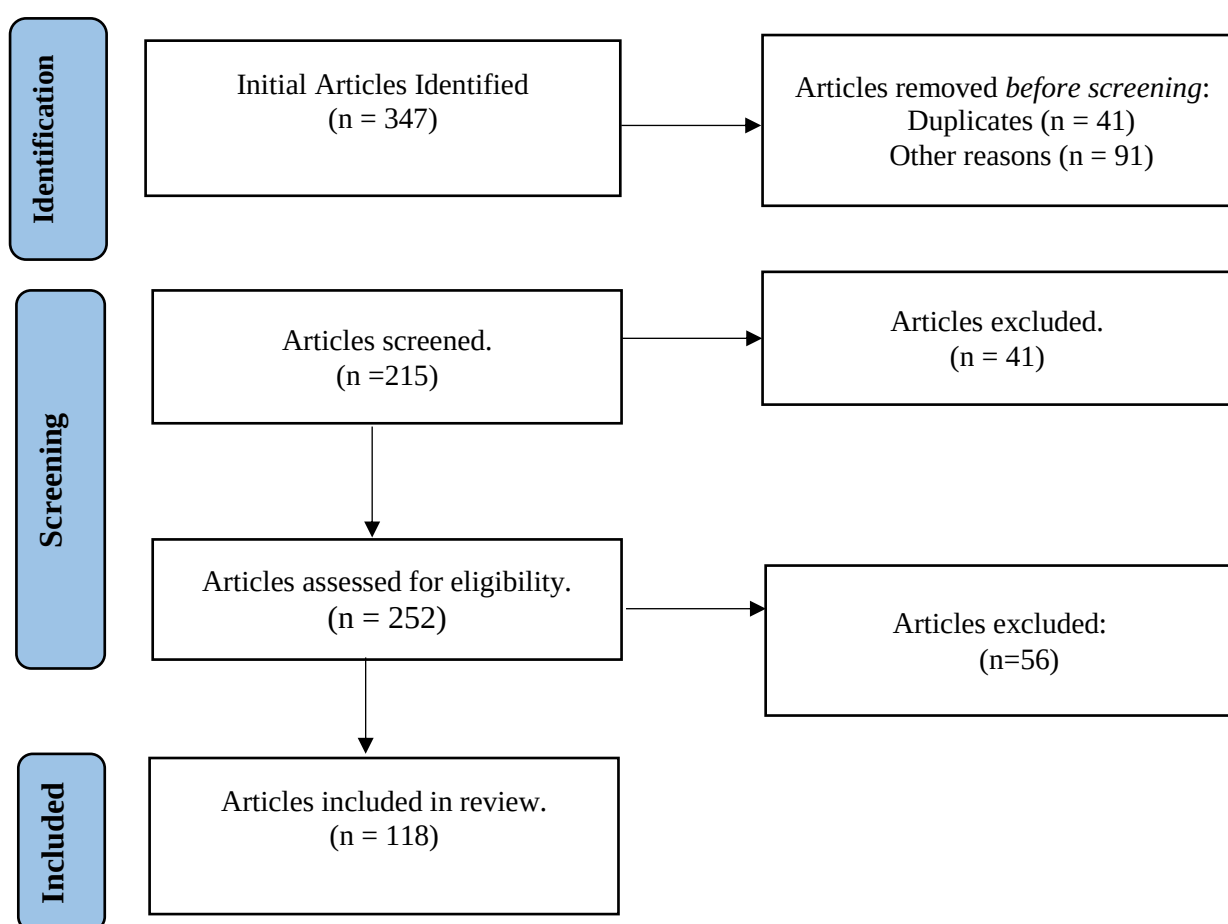


Figure 1
PRISMA Flow Diagram for Article's Selection Process

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Dataset Overview

To characterize the knowledge structure underpinning global research on the nexus between agribusiness practices and climate-smart agriculture, a Sankey diagram (Figure 2) was generated, linking cited references (CR), authors (AU), and research keywords (DE). This mapping highlights how foundational studies addressing agribusiness, climate change, and agricultural adaptation connect to the most active authors and core thematic domains. Prominent research themes include agribusiness, climate-smart agriculture, food security, adaptation strategies, agricultural sustainability, and value chain resilience, along with more specialized areas such as small-scale farmers, supply chains, and greenhouse gas fluxes.

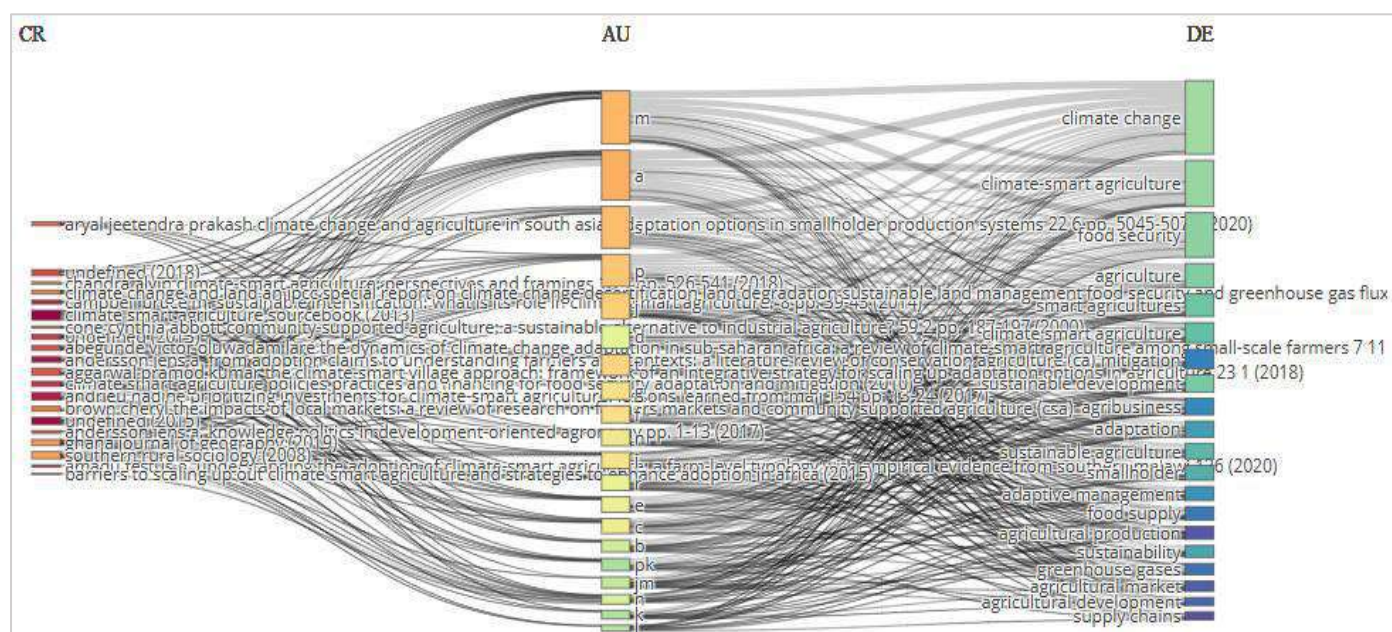


Figure 2

Sankey diagram linking cited references (CR), authors (AU), and research keywords (DE) in agribusiness and climate smart agriculture research.

4.1.2 Trends in Publication Output

The annual distribution of publications examining the nexus between agribusiness practices and climate-smart agriculture from 2014 to 2024 revealed three observable phases of research activity, with phase boundaries defined descriptively based on observed publication patterns rather than statistical breakpoints (Figure 3). The first phase (2014–2016) was characterized by low and fluctuating publication output, beginning with four documents in 2014, increasing to eight in 2015, and declining to two in 2016. The second phase (2017–2021) reflected a period of steady growth, with annual publications increasing from six in 2017 to a peak of 21 in 2021, representing a compound annual growth rate of 40.7 percent. However, this growth rate should be interpreted in the context of the field's small publication base, rising from 6 to 21 publications annually. The third phase (2022–2024) showed a temporary decline, with 15 publications in 2022 and 10 in 2023, followed by a recovery to 20 publications in 2024, nearly matching the 2021 peak. Overall, the dataset produced an average of 10.8 publications per year (standard deviation = 5.7), with a median of 10 and a range of 2–21 publications. The average annual growth rate is 23.5 percent.

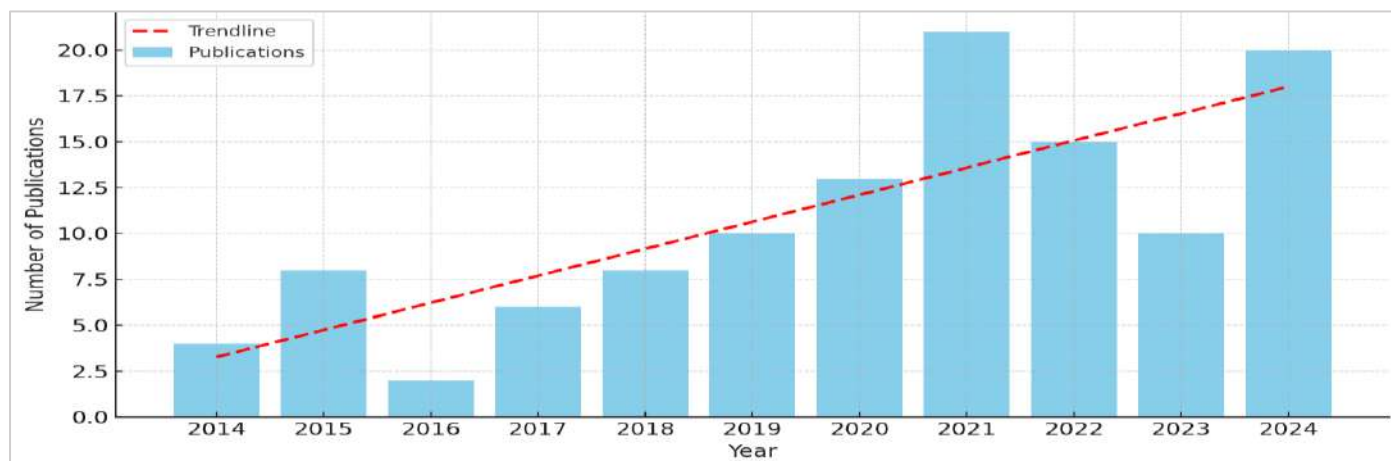


Figure 3
Annual Distribution of Publications on the Agribusiness–Climate Smart Agriculture Nexus (2014–2024).

4.1.3 Institutional Contributions

The distribution of publications by leading research institutions contributing to global scholarship on the nexus between agribusiness practices and climate-smart agriculture showed clear institutional leadership patterns (Figure 4). Across the 118-article dataset, contributions originated from a total of 87 unique institutions. The International Livestock Research Institute (ILRI, Nairobi, Kenya) ranked highest with 17 publications, representing 14.4 percent of the total dataset, followed by Wageningen University and Research (Netherlands) with 12 publications, and the Centro Internacional de Agricultura Tropical (Colombia) with 11 publications. Kwame Nkrumah University of Science and Technology (Ghana) and the University of Leeds (United Kingdom) contributed ten publications each. Other notable contributors include CIRAD, the World Agroforestry Centre, Bioversity International, Københavns Universitet, the International Crops Research Institute, and the World Bank, all with fewer but significant contributions. This concentration underscores the pivotal role of international research centers and globally networked universities in advancing agribusiness and climate-smart agriculture scholarship.

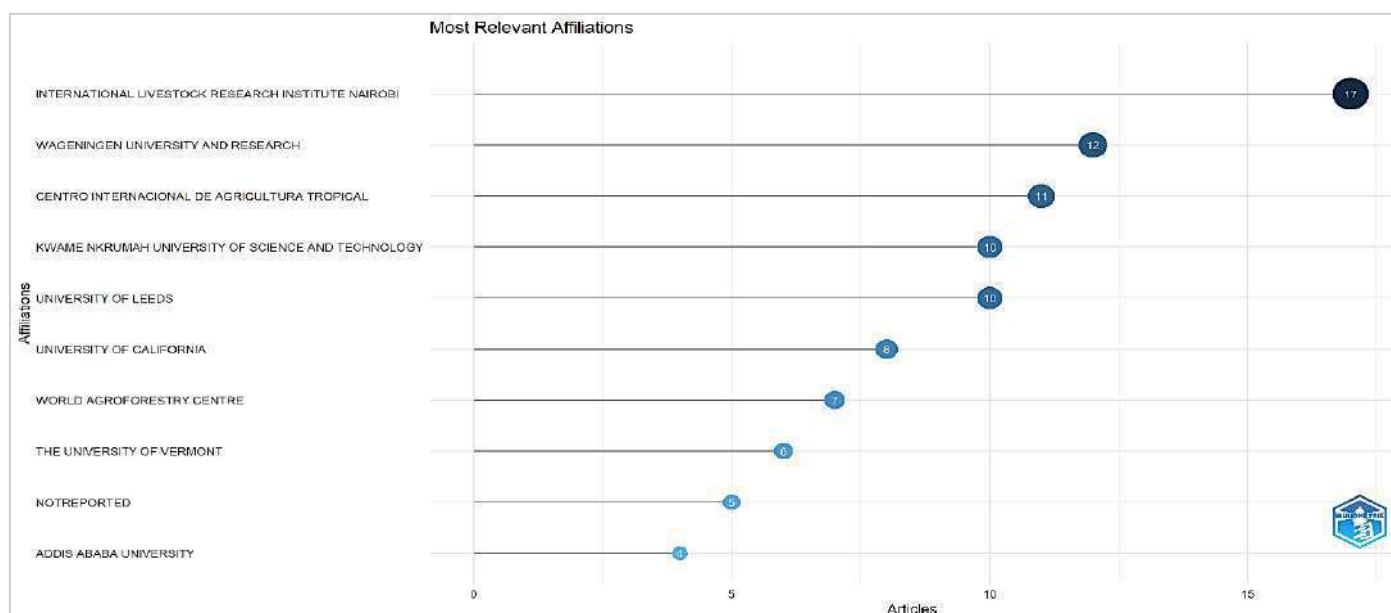


Figure 4
Top Contributing Institutions Publishing on Agribusiness and Climate Smart Agriculture (2014–2024).

4.1.4 Geographical Distribution

The bibliometric analysis identified research outputs originating from 15 countries worldwide (Figure 5). The United States had the highest number of publications ($n = 21$, 15.0 percent), followed by Kenya ($n = 18$, 12.9 percent), India ($n = 16$, 11.4 percent), the Netherlands ($n = 14$, 10.0 percent), and the United Kingdom ($n = 11$, 7.9 percent). These five countries collectively account for 57.1 percent of the total research output. European countries contributed 53

publications (37.9 percent), with notable representations from Italy ($n = 9$, 6.4 percent), France ($n = 8$, 5.7 percent), and Germany ($n = 7$, 5.0 percent). Africa produced 39 publications (27.9 percent), followed by Kenya, Ghana ($n = 7$, 5.0 percent), South Africa ($n = 6$, 4.3 percent), Ethiopia ($n = 4$, 2.9 percent), and Nigeria ($n = 4$, 2.9 percent). The Asian countries generated 25 publications (17.9 percent), primarily from India and Sri Lanka ($n = 5$, 3.6 percent). South America was represented by Colombia ($n = 6$, 4.3 percent), whereas Oceania contributed through Australia ($n = 4$, 2.9 percent).

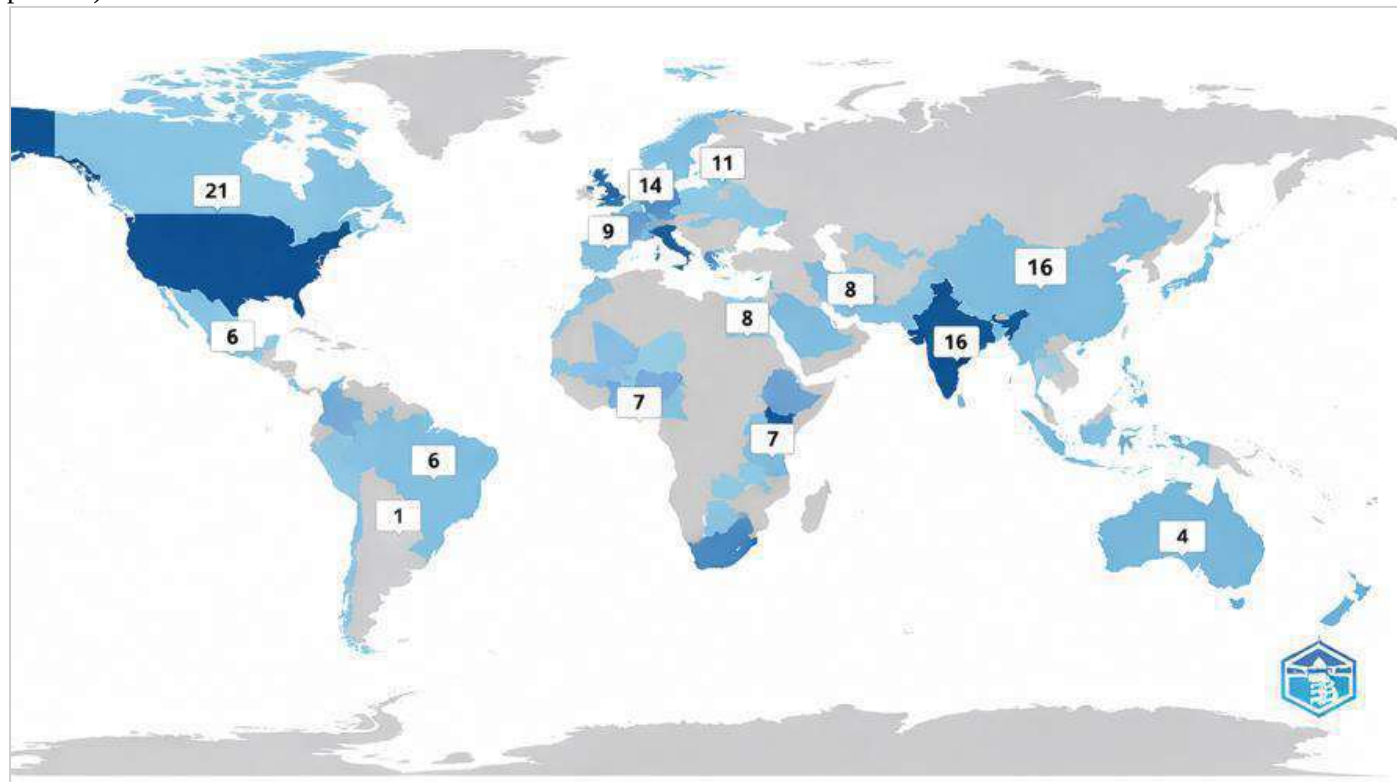


Figure 5

Geographical Distribution of Publications on the nexus between Agribusiness Practices and Climate Smart Agriculture.

4.1.5 Conceptual Linkages and Keyword Co-occurrence

Keyword co-occurrence analysis was performed to examine the conceptual structure of research on the nexus between agribusiness practices and climate-smart agriculture (Figure 6). Each node in the network represents a keyword, with node size reflecting its frequency of occurrence, and links indicating the strength of co-occurrence between terms. The mapping produces five major clusters, each representing a distinct research domain.

Cluster 1 (red) focused on adaptation and mitigation strategies, including adaptation, mitigation, farming systems, and value chains. Cluster 2 (blue) emphasizes risk management and resource efficiency with keywords such as food supply, economics, risk management, irrigation, and sustainability transition. Cluster 3 (green) centers on agricultural technology and innovation, including agricultural finance, technology adoption, and agricultural technology. Cluster 4 (yellow) addressed sustainable agriculture and agribusiness, incorporating terms such as sustainable agriculture, agribusiness, smart agriculture, and climate change adaptation. Cluster 5 (purple) highlights the local food systems and institutional dimensions, including rural development, extension services, innovation, and agricultural economics. Together, these clusters illustrate how research on agribusiness and climate-smart agriculture connects climate-change mitigation and adaptation to market systems, technological solutions, and value-chain sustainability.

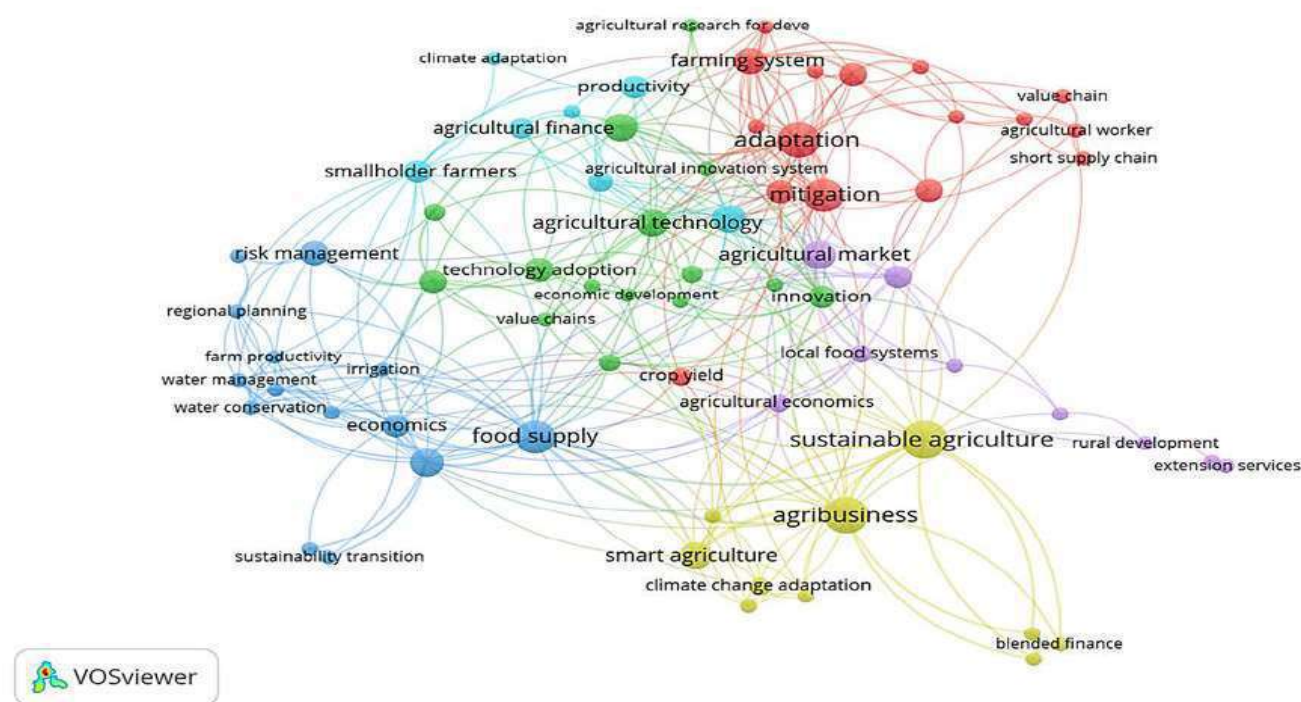


Figure 6
 Keyword Co-Occurrence Network Generated using VOSviewer, Showing Thematic Clusters and Conceptual Linkages.

4.1.6 Thematic Landscape of Agribusiness–CSA Literature

A comprehensive thematic analysis of 118 peer-reviewed articles published between 2014 and 2024 revealed six major themes with twenty-four associated subthemes that characterized research at the intersection of agribusiness practices and climate smart agriculture (CSA). The six core themes were resilience and adaptation, adoption and implementation, value chains and markets, policy and governance, financing and investment, and technology and innovation. These themes frequently overlapped, reflecting the interdisciplinary nature of agribusiness and CSA scholarship. Resilience and adaptation emerged as the most dominant themes, addressed in 106 articles, representing 89.8 per cent of the reviewed literature. Studies on this theme focus on how agribusiness systems anticipate, absorb, and reorganize in response to climate-related challenges. The main subthemes include risk management (42 articles), adaptive capacity (38), climate mitigation (35), and food security (41). Collectively, these studies highlight the role of agribusiness systems in building climate-resilient value chains that sustain production and livelihood.

Closely related, adoption and implementation appeared in 101 articles, accounting for 85.6 per cent of the dataset, and examined the mechanisms through which CSA practices are integrated into agribusiness operations. Subthemes within this category included knowledge transfer (51 articles), barriers to adoption (45), decision-making processes (38), and extension services (29). This body of work emphasizes the importance of institutional capacity, information flows, and socioeconomic factors in shaping the uptake of CSA practices. The theme of value chains and markets is featured in 99 articles or 83.9 per cent of the literature and explores the commercial integration of CSA across agricultural systems. Research under this theme addressed supply chain integration (18 articles), market access (15), input supply (12), and value addition (8). These studies reveal how interactions among producers, suppliers, and buyers influence the integration of the CSA principles.

The policy and governance themes were represented in 86 articles (72.9 per cent of the sample), highlighting the regulatory and institutional architecture influencing CSA adoption. The subthemes included institutional support (45 articles), incentive mechanisms (22), regulatory frameworks (18), and certification systems (11). These studies illustrate how governance structures and policy instruments enable or constrain CSA practices in agribusiness systems. The financing and investment theme appeared in 85 articles, comprising 72.0 per cent of the literature, and focused on the economic and financial mechanisms for CSA implementation. The subthemes include economic viability (48 articles), investment models (25), insurance schemes (12), and climate finance (8). Research in this area investigates how agribusinesses mobilize capital and adopt financial innovations to support climate smart investments over the long term.

Lastly, the technology and innovation themes were featured in 71 articles, or 60.2 per cent of the dataset, and explored technological advances that support CSA adoption. The subthemes included digital agriculture (23 articles),

smart technologies (19), remote sensing (15), and precision farming (11). These studies highlight the ways in which technological solutions and digital tools enhance efficiency, monitoring, and data-driven decision making across agribusiness systems.

Table 1

Distribution of CSA – Agribusiness Literature by Theme and Subthemes

Theme	Subthemes (Number of Publications)	Total Articles (%)
Resilience and Adaptation	Risk Management (42), Adaptive Capacity (38), Climate Mitigation (35), Food Security (41)	106 (89.8)
Adoption and Implementation	Knowledge Transfer (51), Barriers (45), Decision Making (38), Extension (29)	101 (85.6)
Value Chains and Markets	Supply Chain Integration (18), Market Access (15), Input Supply (12), Value Addition (8)	99 (83.9)
Policy and Governance	Institutional Support (45), Incentives (22), Regulatory Frameworks (18), Certification (11)	86 (72.9)
Financing and Investment	Economic Viability (48), Investment Models (25), Insurance (12), Climate Finance (8)	85 (72.0)
Technology and Innovation	Digital Agriculture (23), Smart Tech (19), Remote Sensing (15), Precision Farming (11)	71 (60.2)

4.1.7 Comparative Benchmarking with General CSA Literature

To position these findings within the broader climate smart agriculture literature, we conducted a systematic comparison using three benchmark bibliometric reviews: Okolie et al. (2022), Manyike et al. (2025), and Erick et al. (2025). While general CSA literature typically clusters into three broad themes, this review of the agribusiness–CSA nexus revealed six themes, indicating greater thematic complexity.

Resilience was more prevalent in agribusiness-oriented research, appearing in 89.8 per cent of articles, compared to approximately 65 per cent in general CSA studies. In contrast, technology and innovation topics were slightly less common in the nexus literature (60.2 per cent) relative to approximately 78 per cent in the wider field. Publication growth between 2017 and 2021 showed a compound annual growth rate of 40.7 per cent in nexus literature, outpacing the 25 per cent CAGR observed in general CSA publications. Institutional output was also more concentrated in agribusiness–CSA literature, with a Gini coefficient of 0.72 compared to approximately 0.58 in general CSA literature.

Table 2

Benchmark Comparison: Agribusiness – CSA Nexus and General CSA Literature

Indicator	This Study (Nexus)	General CSA Literature
Thematic Complexity	Six themes	Three themes
Resilience Emphasis	89.8	≈ 65
Technology Emphasis	60.2	≈ 78
Publication Growth (CAGR)	40.7 (2017–2021)	25
Institutional Concentration	Gini = 0.72	Gini ≈ 0.58

4.1.8 Integration Maturity Distribution

Applying the CSA–Agribusiness Integration Maturity Model developed in this study, 118 articles were classified into four stages of integration depth. Stage 1, representing parallel development in which CSA and agribusiness are conceptually disconnected, accounted for 38 articles or 32.2 per cent of the total. Stage 2, representing strategic alignment where integration is recognized but not deeply operationalized, included 41 articles or 34.7 per cent. Together, these early stages comprise 66.9 per cent of the reviewed literature, suggesting that most research remains at the foundational level of integration. More advanced stages, including Stage 3 operational integration and Stage 4 systemic transformation, were represented by 25 articles (21.2 per cent) and 14 articles (11.9 per cent), respectively. These stages reflect research that examines how climate smart principles are embedded in routine agribusiness operations or how entire systems reorganize around CSA objectives. The smaller representation of these stages suggests a relative need for more research focusing on the operational mechanisms and institutional changes necessary to scale CSA through agribusiness systems.

Table 3*Representative Articles by Integration Maturity Stage*

Stage	Classification Criteria	Representative Example	Rationale
Stage 1: Parallel Development	CSA and agribusiness addressed as separate domains	Kalele et al. (2021)	Examines climate change impacts on smallholders without linking to agribusiness systems or value chains
Stage 2: Strategic Alignment	Integration recognized but not operationalized	Makamane et al. (2023)	Identifies determinants of CSA adoption including market access but does not analyse embedded business processes
Stage 3: Operational Integration	CSA principles embedded in agribusiness operations	Senyolo et al. (2021)	Analyses public-private partnerships as operational mechanisms for technology adoption within commercial agriculture
Stage 4: Systemic Transformation	Fundamental reconfiguration of value chains around CSA	Ng'ang'a et al. (2021)	Evaluates cost-benefit structures of CSA investments, proposing systemic changes to financing and value chain models

4.1.9 Network Topology and Structural Gap Analysis

Network topology analysis revealed the key structural features of the agribusiness – CSA knowledge domain. Concepts with high betweenness centrality, such as climate change adaptation (0.42), food security (0.38), and sustainable agriculture (0.35), served as conceptual bridges connecting multiple thematic clusters. The term value chain also held a central position with a betweenness score of 0.31 and a clustering coefficient of 0.67, indicating its importance despite some conceptual isolation from other clusters. The structural hole analysis highlighted gaps in integration across thematic areas. The largest structural gap occurred between the technology and innovation and financing and governance clusters, with an index of 0.73, indicating limited cross-domain engagement. Additional structural holes were found between resilience and adaptation and value chains and markets (0.61) and between policy and governance and technology and innovation (0.54). These structural gaps suggest fruitful areas for future research to enhance the connectivity across knowledge domains.

4.1.10 Regional Variation in Integration Maturity

Geographic analysis based on institutional affiliations has revealed meaningful differences in integration maturity across the world. African institutions demonstrate the highest average integration maturity score of 2.4, driven by active research hubs in Kenya and South Africa. European institutions followed an average score of 2.1, while North American and Asian institutions had lower average scores of 1.9 and 2.0, respectively. These patterns may reflect differences in research priorities, policy environments, and funding landscapes, which shape regional engagement with agribusiness – CSA integration.

4.2 Discussion

4.2.1 Evolution and Growth of the Agribusiness and Climate Smart Agriculture Nexus

The bibliometric evidence suggests that the development of scholarship at the intersection of agribusiness and climate smart agriculture has followed a discernible progression, beginning with conceptual framing and gradually expanding into market-oriented applications. Between 2017 and 2021, the literature exhibited a compound annual growth rate of 40.7 percent, which appears to outpace the 25 percent growth observed in general climate smart agriculture literature (Manyike et al., 2025). This pattern may indicate heightened scholarly interest in the nexus, as market mechanisms and agribusiness strategies gain prominence in climate adaptation discourse (Okolie et al., 2022). It is important to note, however, that these bibliometric patterns reflect trends in the published scholarship and require empirical validation through primary field studies to confirm whether they correspond to real-world developments in agribusiness practice.

Bibliometric trends and science mapping indicate that the literature has evolved from early emphases on resilience and adaptation toward more complex socioeconomic and institutional dimensions, including value chain integration and climate finance (Kishore et al., 2024). This trajectory aligns with the theoretical progression from resilience-oriented frameworks (Folke et al., 2016) toward sustainability transition theory (Geels, 2002), suggesting that the field is moving beyond adaptation toward systemic transformation perspectives. The post-2024 recovery in publication volume may underscore the resilience of the field despite global disruptions such as economic volatility and climate-induced shocks (Chitakira and Ngcobo, 2021). However, the observed fluctuations also highlight the sensitivity of this research area to external funding and policy shifts, underscoring the need for agile and context-responsive research frameworks (Senyolo et al., 2021; Geetha et al., 2023).

4.2.2 Integration Maturity and the Implementation Gap

The maturity distribution analysis provides new insights into the persistent implementation gap in climate smart agriculture research and practice. While earlier studies have attributed this gap to constraints such as limited finance and inadequate policy support (Thornton et al., 2018), the current review suggests an additional dimension: the knowledge base itself may remain insufficiently integrated to support systemic change. Of the 118 articles reviewed, 66.9 percent were classified within the two lowest stages of integration, Parallel Development and Strategic Alignment, indicating that most studies appear to address climate smart agriculture and agribusiness separately or only conceptually link them (Erick et al., 2025).

In contrast, only 21.2 percent of the studies reached the Operational Integration stage, and only 11.9 percent demonstrated the characteristics of Systemic Transformation. Viewed through the lens of Innovation Diffusion Theory (Rogers, 2003), this distribution suggests that CSA integration within agribusiness may still be in the early adoption phase, with most scholarship describing the innovation rather than documenting its diffusion through commercial networks. Similarly, from a Governance Theory perspective (Gereffi et al., 2005; North, 1990), the limited prevalence of Stage 3 and 4 studies implies that institutional mechanisms for embedding CSA within value chain operations remain underdeveloped in the literature. Addressing this gap requires frameworks that move beyond coordination and toward embedded integration, focusing on how agribusinesses internalize climate smart agriculture objectives across value chains (Makamane et al., 2023).

4.2.3 Thematic Patterns and Structural Fragmentation

The review identified six major themes, but significant fragmentation remained across research domains. For example, the structural hole analysis revealed a notable gap between technology and innovation and financing and governance clusters, with a structural hole index of 0.73. From a theoretical standpoint, this gap reflects the disconnect between Innovation Diffusion Theory, which emphasizes technology generation and uptake (Rogers, 2003; Hall et al., 2006), and Sustainable Finance Theory, which addresses the capital and investment conditions for scaling innovations (Baker et al., 2018). The bibliometric evidence suggests that technological advances may often be developed in isolation from the institutional mechanisms that enable adoption, such as financial services or regulatory frameworks (Burt, 1992; Wang et al., 2024). Such disconnects could constrain the real-world scalability of climate smart innovation. Bridging these gaps may require interdisciplinary designs, such as studies examining how digital platforms can reduce financing asymmetries or how regulatory innovations support the adoption of precision agriculture (Jew et al., 2020; Raj et al., 2022). Additionally, the relatively low representation of technology and innovation themes (60.2 percent) suggests an underexplored area, particularly in relation to data analytics, remote sensing, and other tools essential for monitoring performance (Bertoglio et al., 2021).

4.2.4 Institutional Landscape and Geographic Disparities

The institutional landscape remains concentrated, with leading contributions from CGIAR centers, such as the International Livestock Research Institute, the International Center for Tropical Agriculture, and the World Agroforestry Center, alongside select universities (Makate, 2020; García Agüero et al., 2023). While this concentration supports high-quality methodological development, it limits the diversity of contextual perspectives. Geographic analysis revealed that most publications originated from a small group of countries, primarily the United States and Kenya, with limited representation in Latin America and Southeast Asia (Afinjuomo and Muyali, 2024). Interestingly, institutions based in Africa demonstrated the highest average maturity score of 2.4, compared to 2.1 in Europe, 2.0 for Asia, and 1.9 for North America. Viewed through the Sustainable Livelihoods Framework (Chambers and Conway, 1992), this pattern may suggest that African researchers, who often work in environments in which climate and market pressures converge, adopt more integrative analytical approaches precisely because resilience is an immediate operational concern rather than an abstract concept (Makamane et al., 2023). These findings challenge the assumptions that northern institutions lead in analytical sophistication and point to the potential of South–South learning and collaboration.

4.2.5 Knowledge Gaps and Research Priorities

However, several important gaps remain to be explored. While much of the literature addresses technical adoption and economic viability, few studies have examined equity, institutional power dynamics, and inclusive business models. These dimensions are essential for understanding the benefits of climate smart agriculture integration and promoting sustainable and equitable agricultural transformation (Dobkowitz et al., 2020; Njoya et al., 2022). The absence of research in regions such as Latin America further limits its generalizability (Autio et al., 2021). To address these gaps, future studies should incorporate mixed-method designs that validate bibliometric patterns through in-depth empirical inquiry (Makamane et al., 2023). Research on inclusive agribusiness models, particularly those that balance commercial viability with equity, is urgently required. This also includes greater attention to gender dynamics, land tenure, and the role of small and medium agribusinesses in driving climate smart transitions (Raj et al., 2022).

4.2.6 Methodological and Network Considerations

The study's reliance on Scopus and English language sources may have excluded regionally significant literature, particularly non-English publications and gray literature, which often contain practitioner insights and policy innovations (Öztürk et al., 2024). Broader reviews using multilingual and multidatabase strategies tend to show more diverse geographic and thematic coverage. Incorporating patent data and altmetrics could further enrich the analysis of innovation and real-world impact (Kanire et al., 2024). Moreover, collaboration patterns reveal persistent power asymmetries, with most partnerships occurring in the North–South constellations rather than through South–South cooperation (Ali et al., 2025). Strengthening underrepresented institutions will require intentional strategies, such as regional research grants, mentorship schemes, and open access platforms that lower barriers to participation (Senyolo et al., 2021; Raj et al., 2022).

Table 4

Mapping of Thematic Findings to Theoretical Foundations

Theme	Theoretical Foundation	How Findings Relate	Implication
Resilience & Adaptation (89.8%)	Sustainable Livelihoods Framework; Climate Resilience Theory (Folke et al., 2016)	Dominance of this theme confirms resilience as the foundational concern driving agribusiness–CSA scholarship	Suggests resilience is the entry point for most integration efforts
Adoption & Implementation (85.6%)	Diffusion of Innovations (Rogers, 2003); Agricultural Innovation Systems (Hall et al., 2006)	High prevalence indicates focus on how CSA practices spread through agribusiness networks	Literature remains focused on early diffusion stages rather than scaled adoption
Value Chains & Markets (83.9%)	Global Value Chain Theory (Gereffi et al., 2005)	Reflects scholarly attention to commercial structures as vehicles for CSA integration	Value chain governance is recognized but operational embedding remains limited
Policy & Governance (72.9%)	Institutional Theory (North, 1990; Scott, 2001)	Governance arrangements shape CSA adoption through rules, standards, and certification	Structural holes between governance and technology clusters indicate fragmentation
Financing & Investment (72.0%)	Sustainable Finance Theory (Baker et al., 2018)	Growing attention to financial mechanisms, but structural gap with technology cluster (0.73)	Finance and technology research streams need greater cross-domain engagement
Technology & Innovation (60.2%)	Sustainability Transitions Theory (Geels, 2002)	Lowest representation despite importance; limited connection to finance and governance	Underexplored area requiring interdisciplinary research designs

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusion

This study provides a comprehensive bibliometric mapping of 118 publications examining the intersection of agribusiness and climate-smart agriculture (CSA). It reveals a rapidly evolving research domain structured around six interconnected thematic areas with a growing emphasis on value chain integration, financial innovation, and governance reform. The compound annual growth rate of 40.7% between 2017 and 2021, though based on small absolute numbers, underscores the increasing relevance of market-oriented approaches for scaling CSA practices.

Despite this growth, the analysis revealed a notable gap between operational and systemic integration. The finding that 66.9 percent of the reviewed literature remains at the Parallel Development or Strategic Alignment stages indicates that the knowledge base has yet to mature sufficiently to guide systemic transformation. This implementation gap points to a need for research that focuses not only on CSA adoption, but also on institutional mechanisms, financing models, and business processes that enable its mainstreaming. The introduction of the CSA–Agribusiness Integration Maturity Model offers a novel diagnostic tool to classify and evaluate integration depth, supporting both scholarly analysis and policy design.

Geographic and institutional disparities further highlight the concentration of research output among a small number of institutions and regions. African institutions, despite their limited resources, demonstrate higher integration maturity (average score of 2.4) than their counterparts in North America (1.9) and Asia (2.0), suggesting valuable opportunities for South–South collaboration. However, the limited representation in Latin America and Southeast Asia indicates critical blind spots that need to be addressed.

Drawing directly from the empirical findings, this study recommends three priority actions to advance this field. First, the predominance of early-stage integration (66.9% at Stages 1–2) calls for mixed-method research designs that

move beyond bibliometric mapping to validate integration patterns through in-depth case studies of agribusiness operations embedding CSA principles. Second, the structural hole between technology and innovation and financing and governance clusters (index = 0.73) underscores the need for interdisciplinary research that bridges digital agricultural tools with financial mechanisms and regulatory frameworks. Third, the underrepresentation of equity, gender, and inclusive business model research, coupled with the geographic concentration of outputs, demands equity-focused research agendas that prioritize marginalized regions and smallholder perspectives. Ultimately, this study lays the groundwork for a more coherent, inclusive, and action-oriented body of knowledge capable of guiding systemic CSA integration across agribusiness systems.

5.2 Recommendations

The findings indicate that most studies remain at early stages of integration between agribusiness and climate smart agriculture, with 66.9 percent classified within Parallel Development and Strategic Alignment stages. Future research should therefore prioritize empirical investigations that examine how climate smart principles become embedded within routine agribusiness operations, supply chain coordination systems, and investment decision frameworks. Mixed method designs that combine bibliometric mapping with case-based analysis would strengthen understanding of operational integration and support the transition toward systemic transformation.

The structural gap identified between technology and innovation and financing and governance domains highlights the need for stronger interdisciplinary engagement. Future scholarship should explore how digital agriculture, precision technologies, and data driven monitoring systems connect with climate finance instruments, insurance mechanisms, regulatory incentives, and value chain governance arrangements. Bridging these domains would enhance scalability, improve investment confidence, and support long term sustainability of climate smart strategies within commercial agricultural systems.

Finally, greater attention is required to address geographic concentration and limited focus on equity dimensions. Research efforts should expand into underrepresented regions such as Latin America and parts of Southeast Asia, while incorporating perspectives related to gender, land tenure, small and medium enterprise participation, and inclusive business models. Policymakers and agribusiness actors should align institutional frameworks, financing mechanisms, and performance metrics with measurable resilience and mitigation outcomes to ensure that climate smart integration moves from conceptual recognition toward practical and equitable transformation.

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Role of wedding value chain actors in the growth of micro, small, and medium enterprises in Tanzania's creative industry

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ABSTRACT

There is a limited understanding of the role of the wedding value chain actors in the growth of micro, small, and medium enterprises (MSMEs) in Tanzania. The wedding industry in Tanzania has evolved into a multifaceted economic ecosystem that supports a wide range of enterprises, including event planners, catering services, décor providers, garment makers, photographers, cosmetologists, and transport operators. This study examines the role of the wedding value chain in fostering the growth of businesses in Tanzania by analyzing the linkages, opportunities, and constraints that shape enterprise performance. The main research question is "How do wedding value chain actors contribute to the growth of micro, small, and medium enterprises (MSMEs) in Tanzania's creative industries?" Using a qualitative-descriptive research design supported by value chain and enterprise development theories, this study draws on insights from wedding service providers, industry associations, and related stakeholders across major urban centers. This study adopted a mixed methodology using qualitative and quantitative research designs. The target population for this study comprised Micro, Small, and Medium Enterprises (MSMEs) operating within the wedding value chain in Tanzania. This study involved a total of 120 respondents, who were initially purposively selected and subsequently randomly selected from over 5,000 MSMEs across Tanzania. Data collection was carried out through structured questionnaires, semi-structured interviews, and document analysis. For quantitative analysis, descriptive and inferential statistics, including correlation and regression, were used to explore relationships between MSMEs providing services. Regression analysis, in particular, helped to estimate the degree of influence MSMEs have on business outcomes. Qualitative data from interviews are analysed through thematic content analysis, following a well-established six-phase framework. The findings reveal that the wedding value chain stimulates business growth through increased market demand, diversification opportunities, skills development, and inter-firm collaboration. However, enterprises face challenges such as limited access to capital, inconsistent client flows, inadequate professional standards, and weak regulatory coordination. This study concludes that strengthening the wedding value chain offers significant potential for enhancing businesses' competitiveness and expanding employment opportunities. It recommends targeted capacity-building, improved financing mechanisms, and formalization of strategies to unlock the full economic value of the sector.

Keywords: Creative Industry, Enterprise Growth, Micro, MSMEs, Tanzania, Wedding Value Chain

I. INTRODUCTION

The origins of the wedding value chain can be traced back to the historical development of marriage ceremonies from family-centred, communal rites to socially significant occasions needing specific products and services. The majority of communities, including Tanzania, have historically placed a strong emphasis on community participation at weddings, with neighbors and relatives providing labor, food, clothing, and decorations as part of customary reciprocity (Mbiti, 1969). Traditional Tanzanian wedding customs prioritised kinship, social cohesiveness, and obedience to clan traditions over business dealings (Nindi, 2013). These celebrations frequently featured symbolic rites, such as cooking parties and send-offs, which strengthened social bonds and group responsibilities (Uwase, 2025).

The commercialisation of weddings was further driven by the expansion of consumer culture and the emergence of creative and service industries. According to academics, the growth of industries including fashion, photography, catering, and event organizing produced organized chances for entrepreneurial endeavors (Hirschman & Holbrook, 1982). The need for expert wedding services was enhanced by rising disposable incomes, exposure to international wedding styles, and media impact (Lewis, 2015).

These interconnected services eventually came together to form what is now known as the wedding value chain, which consists of pre-wedding preparation, product and service production, event day execution, and post-wedding activities (Porter, 1985; Kaplinsky & Morris, 2001). The formation of the wedding value chain is the reflection of the

larger socioeconomic changes, such as the formalisation of formerly unofficial services, urbanisation, and market-driven consumer behavior. As a result, it constitutes a sophisticated business ecosystem that sustains elements of traditional culture while fostering the expansion of Micro, Small, and Medium-Sized Enterprises (MSMEs) as evidenced by Mushi (2019).

In Tanzania, weddings have historically been deeply embedded in cultural, social, and communal practices. Traditional weddings among the majority of ethnic groups require complex procedures, family bargaining, and adherence to clan-based conventions, such as communal recognition and bride price (Mhando, 2024)). Modernisation, urbanisation, and outside influences have put social and cultural constraints on traditional marriage customs, including "Kulesya" (elopement) and "Kuselera" (formalised communal marriage). Similar to this, research on the impact of religious organisations like the Roman Catholic Church shows how, especially in areas like Kilimanjaro region, Christian-inspired marriage rites have progressively replaced or augmented some customs (Gores & Kapinga, 2020).

Oral literature and wedding songs from ethnic groups like the Nyiha in Mbozi District also exhibit cultural continuity. According to Mwasunda et al. (2023), traditional wedding songs still convey cultural values, social norms, and gender expectations despite rituals including modern constituents. These results highlight how cultural legacy endures despite changing customs. Similarly, recent research indicates that gendered expectations and representations in wedding speeches reflect both continuity and change, demonstrating how modern Tanzanian weddings frequently combine new social discourses with traditional standards (Ndimbo & Keya, 2024).

Tanzanian weddings are getting more professionalised and commercialised, according to recent trends. Specialised services, including professional event planning, catering, décor, makeup artistry, photography, and venue management are now frequently included in urban and middle-class weddings. This represents a change from strictly family-organised celebrations to coordinated, service-oriented occasions (Materu, 2025). It is clear that wedding customs are becoming more hybridised, with couples often fusing traditional rites and community celebrations with Western-style clothing and church ceremonies. Urbanisation, social media, exposure to international media, and shifting socioeconomic circumstances all have an impact on these shifts, resulting in a wedding scene that is both economically and culturally significant (Materu, 2025). Also, as Tanzanian culture developed more urbanized and modernized, weddings gradually changed from being mostly cultural occasions to ones requiring large amounts of money and customized services, indicating the beginning of commercialization (Khalid, 2017).

Despite these documented shifts, there is limited scholarly research that systematically traces the evolution of weddings across Tanzania. Current studies are often localised, ethnographic, or descriptive, focusing on specific ethnic groups or cultural practices, leaving gaps in understanding the national picture, the effects of modernisation, and the emergence of a wedding-related economy. The lack of research on how these evolving practices influence livelihoods, entrepreneurship, and MSMEs development highlights a significant gap, providing an opportunity for scholarly investigation into the Tanzanian wedding value chain and its broader social and economic implications (Gregory, 2025; Mwasunda et al., 2023; Ndimbo & Keya, 2024).

Tanzanian wedding value chain participants confront a number of obstacles that impede their company's expansion, efficiency, and total economic potential. Limited access to financing is one of the biggest obstacles. It is challenging to obtain loans for business expansion, equipment purchases, or marketing because majority of MSMEs in the wedding industry operate informally and lack collateral or credit history (Mushi, 2019; Khalid, 2017). Actors are frequently forced to rely on personal resources because of this financial constraint which limits their ability to scale operations or satisfy high client demands during busy wedding seasons.

In urban areas like Dar es Salaam and Arusha, weddings are concentrated around specific months of the year, resulting in periods of high income interspersed with protracted periods of low demand. For players like caterers, decorators, and photographers, this volatility impacts inventory management, personnel retention, and cash flow stability (Mhando, 2020). The industry is further hampered by inadequate professional training and skills. While many MSMEs rely on informal knowledge or on-the-job experience, some actors, especially in urban regions, have formal training in event management, fashion, or catering. This disparity hinders the adoption of innovative methods, lowers competitiveness, and impacts service quality (Lewis, 2015).

It is challenging for a large number of players to obtain government assistance, take part in official marketplaces, or safeguard their intellectual property because they operate without formal registration, standardisation, or adherence to legal standards (Nindi, 2013). Additionally, actors frequently operate without clear requirements for licensing, taxation, and consumer protection due to inadequate legal frameworks and a lack of institutional support for MSMEs in creative sectors, which further complicates company operations (Khalid, 2017).

Many players, especially in cities, provide comparable services with minimal distinction, which can result in lower margins and price undercutting. Smaller businesses find it difficult to contact customers and compete with more established service providers due to their limited marketing and online presence (Mushi, 2019; Mhando, 2020). The wedding value chain nevertheless offers substantial chances for MSMEs expansion, skill improvement, and job creation in spite of these obstacles. The sector's contribution to Tanzania's creative economy and entrepreneurial landscape would

be improved by addressing the obstacles through financial support, capacity training, formalisation, and regulatory strengthening.

1.1 Statement of the Problem

Globally, the wedding industry has expanded significantly over the past few decades, transforming from intimate, family-centred traditions into a large and dynamic economic sector. Studies from industrialised countries show that wedding-related services, including venues, catering, décor, apparel, photography, and entertainment, constitute a substantial segment of the broader leisure and events industry. In South Africa, for instance, weddings have evolved into platforms for expressing social status and stimulating commercial activity across multiple service sectors (Erlank, 2014). Recent market analyses further indicate that destination weddings, customisation trends, and the provision of full value-chain services are key drivers of growth in the global wedding services market (Grand View Research, 2025).

Akanle et al. (2019) describe weddings in Nigeria as a “hidden GDP,” sustaining thousands of small businesses, including caterers, tailors, photographers, and event planners. Similarly, Uganda’s enjoyment economy report highlights weddings as a key component of the expanding social-events sector, generating employment and stimulating entrepreneurship across East Africa (Baloyi, 2022). Collectively, these studies illustrate how weddings have become increasingly institutionalised as economic activities, embodying both cultural significance and substantial income-generation potential.

Anecdotal and media-based accounts indicate that weddings in Tanzania remain culturally significant while becoming increasingly commercialised, creating opportunities for a wide range of service providers. Weddings occur throughout the year in both rural and urban settings, generating consistent demand for venues, décor, catering, beauty services, photography, and logistics (Aviaan Accounting Market Research, 2025). Feasibility studies on event management further show that the demand for professional wedding planning, particularly in major cities is being fuelled by rising middle-class incomes, the influence of social media, and a growing preference for well-organised, high-quality ceremonies (Aviaan Accounting Market Research, 2025).

Although weddings are a significant economic activity in Tanzania, the wedding value chain remains largely underexplored in academic research. Limited attention has been given to its actors, structure, and value-adding processes across the pre-wedding, production, execution, and post-wedding stages, as well as its socioeconomic implications for MSMEs. Few peer-reviewed studies approach the wedding industry through a value-chain lens; most existing work is descriptive, anecdotal, or media-driven (Fagbola, 2023). Both global and local studies tend to put emphasis on market size or cultural dimensions of weddings, yet rarely adopt a value-chain perspective that links employment, skills development, micro-enterprise performance, and broader regional economic development. This gap in research limits our understanding of how weddings influence livelihoods, stimulate entrepreneurship, and shape the potential formalisation of actors within Tanzania’s creative industry.

1.2 Research Questions

- i. Who are the primary players in Tanzania's wedding value chain?
- ii. How are wedding value chain actors classified into micro, small, and medium-sized businesses in Tanzania?
- iii. How do wedding value chain actors contribute to the growth of MSMEs in Tanzania?
- iv. How does the degree of coordination among wedding value chain actors affect the growth of MSMEs in Tanzania?
- v. How does limited access to capital influence the growth of MSMEs operating in Tanzania?
- vi. What impact does limited access to training and skill development have on the expansion of MSMEs in Tanzania's wedding value chain, and what part do coaching and mentoring play in fostering this expansion?

II. LITERATURE REVIEW

2.1 Theoretical review

2.1.1 Overview

According to Esubalew and Adebisi (2024), business development services and entrepreneurial competencies act as mediating variables that shape the relationship between the wedding value chain and MSMEs' growth. Access to finance, managerial training, marketing skills, technology adoption, and networking opportunities equips MSMEs with the capabilities needed to meet customer expectations and compete effectively. MSMEs' growth as the dependent variable is assessed through indicators such as revenue, employment, customer base expansion, and business formalization. Although the wedding value chain offers substantial growth potential, the extent of MSMEs' success depends largely on their access to support services and their ability to apply entrepreneurial skills. These mediators strengthen MSMEs' capacity to manage resources, maintain quality standards, and scale their operations, thereby enhancing the positive impact of the wedding value chain on business performance (Nandez & Esayne, 2024).

2.1.2 Engagement with African Informal Sector Theory

The majority of scholars on the African informal sector, such as Meagher (2021) and Chen (2021) contend that informality is a structural and gendered aspect of African economies, primarily in service-oriented and culturally rooted industries, rather than merely a residual or transitional condition. Women are disproportionately represented in informal wedding value chain segments that correspond with socially established gender roles and care-based jobs, such as catering, beauty services, tailoring, décor, and transportation. The theory of the informal sector emphasizes how these women-run businesses function in intricate social networks, depend on transactions based on trust, and combine domestic and commercial duties. Such embeddedness limits women's ability to scale, formalize, and access financial services while also making it possible to enter the wedding economy with little capital requirements. The results of this study are consistent with African feminist political economy viewpoints, which contend that, rather than a lack of entrepreneurial ability, women's overrepresentation in informal businesses is a result of structural disparities in access to resources, training, and institutional support (Alfers, 2022).

According to Fox and Sohnesen (2023), the African informal sector theory draws attention to the “segmented informality” of value chains, where women and youth tend to occupy lower-value, labor-intensive nodes, while men are more visible in capital-intensive or coordination roles such as event ownership, venue management, and large-scale logistics. Despite women's crucial role in service delivery, this division in Tanzania's wedding value chain perpetuates gendered economic disparities and restricts women's upward mobility. Scholars studying the informal sector, like Meagher (2021), contend that market-driven expansion in informal economies may strengthen rather than weaken current gender hierarchies in the absence of focused policy interventions. Furthermore, the African informal sector theory argues that the wedding value chain can be transformed into a more inclusive growth pathway by increasing women's participation in higher-value segments through coaching and mentorship, collective organization, access to financing, and professional certification. By illuminating how cultural norms, informality, and institutional exclusion interact to influence women's entrepreneurial outcomes within Tanzania's wedding economy, African informal sector theory enhances the gender analysis.

2.1.3 Wedding Value Chain Actors in Tanzania

Tanzania's wedding value chain is made up of a wide range of participants that work together to organise, carry out, and support weddings. Event planners and coordinators are at the center of the value chain; they oversee all aspects of the process, including scheduling, budgeting, and vendor coordination. These actors serve as middlemen between customers and other service providers, and they frequently give all-inclusive packages that integrate several services, guaranteeing a flawless wedding experience (Mhando, 2020).

By offering bridal gowns, suits, traditional clothing, and accessories, fashion and apparel suppliers play a vital role. In order to help local MSMEs in the textile and fashion industries, this group comprises bridal stores, tailors, and designers who frequently provide bespoke services that satisfy both modern and traditional preferences (Mushi, 2019). In a similar vein, catering and hospitality services, which offer food, drinks, and venue management are essential players. Hotels, restaurants, and independent caterers work closely with planners to assure quality, cultural relevance, and client pleasure (Lewis, 2015).

Florists and decorators oversee the aesthetic and experience aspects of weddings, offering thematic designs, lighting, stage décor, and floral arrangements. In order to provide aesthetically pleasing events that meet customer expectations, these performers frequently work with photographers and planners (Richards & King, 2022). In addition, photographers and videographers record the event and sell products like highlight reels and albums. Through innovative marketing, their work helps to commercialise wedding services while also preserving memories (Mushi, 2019).

The bride, groom, and wedding party are prepared by beauty and personal care professionals, such as makeup artists, hairstylists, and wellness specialists, who frequently offer services to family members. This section adds to the overall value of wedding experiences and generates new business prospects (Khalid, 2017). In addition to providing seasonal employment possibilities, entertainment providers including musicians, DJs, and dance groups contribute to the festive ambiance, particularly during the busiest wedding seasons (Mhando, 2020).

The value chain is completed by post-wedding service providers, stationery and printing services, and transportation and logistics companies. While printing services create invitations, programs, and signage that influence the ceremony's organisational and visual elements, transport companies make sure that visitors and cargo are moved safely and on schedule. Post-wedding service providers, including album producers and anniversary planners, extend business prospects beyond the wedding day and promote long-term client relationships ((Nindi, 2013; Lewis, 2015). Together, these players create an interconnected ecosystem where the success of the wedding value chain is determined by cooperation, coordination, and service quality. This network illustrates the combined social and commercial significance of weddings in Tanzania by connecting cultural traditions with economic activity, allowing MSMEs to expand, develop, and make money.



2.4 Empirical review

2.4.1 Experience from other Countries

The majority of studies report that MSMEs in the tourism, hospitality, and event-oriented industries frequently use events, such as weddings, festivals, and other social gatherings, as a business strategy that promotes market expansion, business growth, and enhanced competitiveness. For instance, owners and operators of MSMEs working in small towns and regional areas discovered that these MSMEs use "event leveraging," or purposefully utilising events (festivals, local celebrations), not only to make quick money but also to expand into new markets, improve ties with current clients, reward and develop employees, and promote community relations.

In Kenya, the wedding industry generates over KSh30 billion (USD 231.1m) annually for entrepreneurs providing wedding services such as venues, catering, photography, décor, transportation, and so forth (Mbugua, 2025). According to the survey, there is a consistent demand for wedding-related services in Kenya because about 28,000 couples get married each year. This implies that weddings are a significant and consistent source of income for many MSMEs, supporting the idea that wedding value chains can sustain livelihoods and enterprise growth (Getz, 2008).

Empirical evidence from the MSMEs in Saudi Arabia discovered that business performance is positively impacted by both internal resources and external environmental elements, such as demand pulses from events, tourism demand, and social functions. This suggests that, depending on how well they manage both internal capabilities and external demand, MSMEs in hospitality-related industries, which overlap with wedding service providers, can survive and expand (Samad, 2022).

2.4.2 Link between Global Value Chain Theory and Tanzania's Wedding Economy

Gereffi et al. (2021) note that the global value chain (GVC) theory provides a framework for understanding how economic activities are organised across networks of interconnected actors, where value is added at each stage of production, service delivery, and distribution. According to this paradigm, industries are seen as systems of interdependent activities rather than as separate businesses, whose competitiveness and growth potential are determined by resource allocation, coordination, and knowledge transfer (Kano et al., 2020). When GVC theory is applied to Tanzania's wedding industry, it becomes clear how the industry functions as a networked system in which various factors such as event coordinators, caterers, decorators, photographers, fashion designers, and transportation providers contribute unique but connected services that together produce economic value. United Nations Conference on Trade and Development [UNCTAD] (2022) notes that Tanzania's wedding industry connects local MSMEs to a financially active and culturally significant market, generating opportunities for employment, skill development, and revenue generation, much like global value chains in manufacturing or tourism link upstream suppliers to downstream consumers.

Additionally, GVC theory emphasizes how governance, upgrading, and competence building affect how well chain participants operate (Gereffi et al., 2021). According to the notion, businesses can upgrade their products, processes, or functions in order to increase their competitiveness and capture more value. For example, Tanzanian MSMEs engaged in photography, décor, or catering can improve their market position by incorporating complementary services into all-inclusive wedding packages, implementing digital marketing, or raising service quality. Therefore, applying GVC theory to the wedding economy offers a strategic framework for creating interventions like training, financing, and networking programs to support MSMEs' participation and expansion within this culturally and economically significant sector, as well as a conceptual lens to analyze how individual actors create and capture value.

2.3 Conceptual review

The conceptual framework (Figure 1) is firmly rooted in modern value chain and creative industry studies, which emphasizes that coordinated networks of interrelated persons, activities, and institutions, rather than just individual enterprises, generate economic value. According to the United Nations Conference on Trade and Development [UNCTAD, 2022], fashion, events, and creative services are examples of culturally embedded businesses that operate as ecosystems where demand, skills, and collaboration all work together to define firm success. The World Bank (2021) argues that MSMEs can engage in production, service delivery, and the development of experiential value since event-based markets offer recurrent demand and low entry barriers. The framework reflects the current belief that social events serve as economic platforms connecting various creative and service-oriented businesses into a single growth-oriented system by conceptualizing the wedding industry as a value chain that includes pre-wedding, event-day, and post-wedding activities (Richards & King, 2022).

Furthermore, this framework also incorporates new research on MSMEs and entrepreneurship, which emphasizes the mediating function of entrepreneurial competencies and business development services in converting market opportunities into quantifiable growth outcomes. The majority of scholars argue that MSMEs' capacity to scale operations, sustain service quality, and endure market volatility is greatly impacted by their access to capital, managerial expertise, training, digital technologies, and networks (United Nations Industrial Development Organization [UNIDO],

2023). Conversely, the conceptual framework acknowledges that involvement in the wedding value chain by itself does not always result in corporate growth; rather, success is contingent upon firms' internal competencies and external support systems. The model integrates cultural-economic activities with firm-level performance by connecting the wedding value chain (independent variable), mediating capabilities, and MSMEs growth indicators (dependent variable). This theoretically grounded structure informs empirical analysis, directs the literature review, and increases the study's explanatory power.

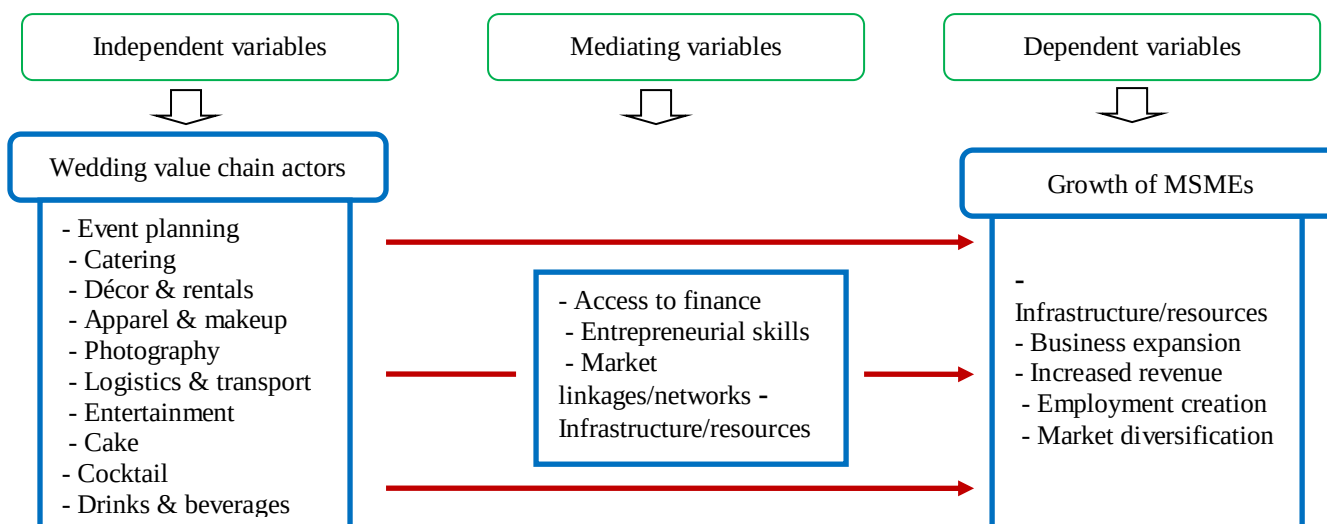


Figure 1

Conceptual framework for assessing the role of MSMEs in Tanzania

Source: Author's construct (2025)

III. METHODOLOGY

3.1 Study Area and Rationale for Selection of those Areas

The study was conducted in eight (8) regions of Tanzania, including: Arusha, Dar es Salaam, Dodoma, Kilimanjaro, Mbeya, Morogoro, Mwanza, and Unguja Urban West. These areas were chosen because they are important centers of Tanzania's economy and entrepreneurship, where MSMEs and services associated with the wedding and creative sectors are most prevalent and active. As the nation's largest commercial hub and the main source of employment in the private sector, Dar es Salaam accounts for a sizable portion of formal employment and business establishments, creating a wealth of opportunities for MSMEs providing services related to events and weddings (Daily News, 2025). Arusha and Kilimanjaro are significant economic areas with close ties to the tourism, hospitality, and service sectors, all of which are closely related to wedding value chain activities. They are also home to a variety of innovative MSMEs that cater to both domestic and foreign demand (Mkenda, 2024). The specific economic dynamics of Zanzibar, where tourism and cultural festivities provide extra avenues for MSMEs to participate in weddings and events, are captured by including Unguja Urban West (Makame et al., 2023).

Furthermore, choosing Morogoro, Mwanza, Mbeya, and Dodoma guarantees representation of areas with different economic bases, degrees of urbanization, and firm structures, offering a thorough picture of wedding value chain participation throughout Tanzania's socioeconomic landscape. Dar es Salaam, Mwanza, Mbeya, and Dodoma are among the regions with the greatest number of business establishments in the nation, indicating a thriving MSME activity that can be connected to the demand for cultural and event services (National Bureau of Statistics & Office of the Chief Government Statistician, 2024). Morogoro's economic profile, which is marked by expanding small company activity and agricultural value chains, provides more context for comprehending how local businesses in less urbanized areas use weddings as a business opportunity.

3.2 Regions and MSMEs Selection

In order to ensure that Tanzania's diversified wedding value chain ecology is represented geographically, economically, and socioculturally, the study's regions were purposefully chosen. The selection of regions was based on their economic activity levels, MSMEs' predominance, and their importance as centers of innovative and event-focused services within the country's economy. Utilizing the Tanzania Statistical Business Register (SBR) improves the representativeness of the sampling frame since it shows significant regional variations in the quantity and distribution of business establishments, which is a key indicator of entrepreneurial activity and economic vibrancy (National Bureau

of Statistics [NBS], 2024). To ensure that Zanzibar's distinct MSME environment was included, the study concentrated on areas with a mix of large urban centers (Dar es Salaam and Arusha), mid-size cities (Mwanza and Mbeya), administrative capitals (Dodoma), and economically diverse regions (Morogoro and Kilimanjaro), as well as Unguja Urban West in Zanzibar. This stratification improves the breadth and depth of findings by capturing differences in market demand, service formalization, and creative industry engagement within Tanzania's socioeconomic environment.

To ensure inclusion across enterprise sizes and service categories, MSMEs engaged in the wedding value chain within these chosen regions were found and sampled using a stratified and randomized method. Micro, small, and medium-sized businesses engaged in wedding services, including catering, fashion and beauty services, event planning, photography, décor, and logistics, were proportionately represented thanks to the Statistical Business Register (SBR), which offered a comprehensive framework from which MSME listings could be derived (NBS, 2024). To ensure both diversity and statistical reliability, businesses within each region were stratified by their operational category before being chosen at random to take part in the study. This multi-stage sampling approach is in line with MSME research best practices, which employ stratified random procedures to lessen sample bias and enhance the validity of results when examining diverse company populations.

3.3 Study Design

This study employed a mixed methodology using qualitative and quantitative research design. The approach helps to thoroughly explore the perceptions, experiences, and contextual factors that shape MSMEs' growth within the wedding value chain. The qualitative methods in this study were appropriate due to the business behaviour, social interactions, and entrepreneurial decisions that are embedded in cultural and local environments as supported by Creswell (2014). Similarly, the quantitative methods are important because they allow the researcher to measure the extent to which wedding value chain actors contribute to MSMEs growth in Tanzania. Through numerical data such as revenue, number of clients, employment levels, and business investments this study can identify patterns, compare different actors, and statistically test whether participation in the wedding value chain is associated with increased business performance. This helps to provide objective, evidence-based conclusions about the economic impact of the wedding industry on MSMEs (Creswell, 2014; Saunders et al., 2019; Bryman, 2016).

3.4 Sampling and Sample Size

The target population for this study comprised Micro, Small, and Medium Enterprises (MSMEs) operating within the wedding value chain in Tanzania. In particular, this included business owners and operators providing wedding-related goods and services such as catering and food services, event planning and coordination, décor and event design, bridal and groom attire (tailoring and fashion), photography and videography, beauty and personal care services, entertainment (DJs, bands, MCs), transport and logistics, venue and accommodation services, florists, rental services (tents, chairs, lighting, sound), cake design, and stationery/printing services.

The sampling strategy combines purposive sampling and stratified random sampling, ensuring both depth and representativeness (Table 1). Key informants, such as MSMEs operators, managers, and industry experts, were selected purposively due to their direct involvement in business, aligning with Patton (2015) emphasis on selecting participants who can offer deep, meaningful insights. At the same time, stratified random sampling of MSMEs in Arusha, Kilimanjaro, Dar es Salaam, and Zanzibar ensured that smaller tourism enterprises were included in a proportionate way and representative of the population (Creswell & Poth, 2018).

Table 1

Distribution of MSMEs by Region and Category

S/No.	Region	Category of enterprises			Total
		Micro	Small	Medium	
1	Arusha	5	5	5	15
2	Dar es Salaam	5	5	5	15
	Kilimanjaro	5	5	5	15
4	Morogoro	5	5	5	15
5	Mwanza	5	5	5	15
6	Mbeya	5	5	5	15
7	Dodoma	5	5	5	15
8	Unguja Urban West	5	5	5	15
	GRAND TOTAL	40	40	40	120

This study involved a total of 120 respondents, who were initially purposively selected and subsequently randomly selected from over 5,000 MSMEs across Tanzania (Table 3). According to the National Bureau of Statistics ([NBS], 2024) and Japan International Cooperation Agency ([JICA], 2021), there is an estimated range of 5,000 – 9,000 MSMEs in the wedding value chain in Tanzania. These include the businesses that provide goods and services for weddings, such as: caterers and food suppliers, decor and event design, tailors, fashion designers, and bridal clothing, photographers and videographers, venues and accommodation, event planners, florists, and rental services (tents, chairs, lighting, sound). Other services are beauty and cosmetics, transportation, cake designers, printing and invitations (e-cards), and entertainment (bands, DJs).

The study assesses the role of the wedding value chain actors in the growth of micro, small, and medium enterprises in Tanzania and aims to estimate what proportion of the MSME representatives that would provide useful information at an approximate 95% confidence level. Since no exact data were available on the proportion of MSMEs currently providing services, the author took the worst-case scenario and set $p = 0.5$ (and therefore $q = 1 - 0.5 = 0.5$). Also, this was accepted at a margin of error of $\pm 9.1\%$ and therefore set $d = 0.091$. To determine the minimum sample size, the study applied the following formula:

$$n = \frac{4pq}{d^2}$$

Source: Rose et al. (2015)

According to Rose et al. (2015), “n” represents the required sample size, indicating the minimum number of respondents needed to ensure reliable statistical estimates. The variable “p” denotes the estimated proportion of the population that possesses the characteristic of interest, while “q” is the complement of this proportion, and variable “d” refers to the margin of error or level of precision.

Therefore,

$$n = \frac{4 \times 0.5 \times 0.5}{0.091^2} = 120$$

Therefore, the minimum sample size was 120. This sample size is also supported by Rwegoshora (2014) in his guide on social science research. Data collection was carried out through structured questionnaires, semi-structured interviews, and document analysis. The use of mixed methods for data gathering is grounded in the principle of triangulation, which enhances validity by corroborating evidence from different sources (Creswell & Plano Clark, 2023). Structured questionnaires provide quantifiable measures of frequency and perceived impact, interviews yield nuanced stakeholder perspectives, and document analysis of policy or training reports situates these perceptions within a wider institutional context.

For quantitative analysis, descriptive and inferential statistics, including correlation and regression, were used to explore relationships between MSMEs providing services. Regression analysis, in particular, helped to estimate the degree of influence MSMEs have on business outcomes. Qualitative data from interviews are analysed through thematic content analysis, following a well-established six-phase framework (Braun & Clarke, 2006). This method allowed the author to identify recurring themes, as well as challenges and best practices. Ethical considerations were strictly upheld: participants gave informed consent, confidentiality was maintained, and their participation was voluntary. Reliability was strengthened through pre-testing of the questionnaire, ensuring clarity and consistency, while validity was enhanced via triangulation of survey, interview, and document data (Hossan et al., 2025).

3.5 Ethical Consideration

In order to protect the rights, privacy, and welfare of participants in research involving human subjects, ethical concerns are crucial. Before participating in the study, all participants including MSME owners, service providers, and other players in the wedding value chain must give their informed consent. They must be fully informed of the study's goals, methods, and their right to discontinue participation at any moment without incurring any penalties (Creswell & Poth, 2018). By using codes in place of personal identifiers and safely storing gathered data to prevent unwanted access, confidentiality and anonymity will be rigorously upheld. According to Creswell and Poth (2018), the study is to ensure participants' important business information is handled discreetly and that participation does not result in harm or excessive stress. In accordance with established research methods, ethical permission was obtained from a suitable institutional review board or ethics committee before the start of data collection.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Types of Actors in the Wedding Value Chain in Tanzania

According to this study's findings, Tanzania's wedding value chain is made up of a wide range of participants, including caterers, event coordinators, decorators, photographers and videographers, fashion designers, musicians and performers, flowers, transportation companies, and venue owners (Table 2). Together, these players, which range in size from micro and small businesses to medium-sized corporations, contribute to the wedding industry's vitality and economic potential. By taking part in this value chain, MSMEs can increase their revenue, grow their clientele, and gain market recognition, underscoring the sector's importance as a major source of economic activity and entrepreneurial life.

Table 2

Types of Actors in the Wedding Value Chain in Tanzania

Value Chain Segment	Key Actors	Core Roles / Services Provided
Pre-Wedding Planning	Event coordinators, wedding planners, MCs	Concept design, budgeting, scheduling, vendor coordination
Catering & Hospitality	Caterers, beverage suppliers, cake bakers	Food preparation, drinks supply, cake design and service
Décor & Aesthetics	Decorators, florists, lighting specialists	Venue styling, floral arrangements, lighting and theme setup
Fashion & Beauty	Fashion designers, tailors, makeup artists, hair stylists	Bridal and groom attire, traditional wear, beauty services
Media & Documentation	Photographers, videographers, editors	Photography, videography, post-production, live streaming
Entertainment	Musicians, DJs, traditional dancers, performers	Live music, cultural performances, sound management
Logistics & Transport	Transport companies, car rentals, drivers	Guest transport, bridal convoy, equipment logistics
Venues & Infrastructure	Venue owners, hotels, halls, religious institutions	Ceremony and reception spaces, accommodation
Supplies & Rentals	Tent providers, furniture hire companies, equipment rentals	Tents, chairs, tables, PA systems, generators
Cultural & Religious Services	Religious leaders, elders, marriage officers	Ceremonial rites, blessings, legal registration
Post-Wedding Services	Honeymoon operators, cleaners, gift vendors	Honeymoon packages, cleanup services, souvenirs
Support & Informal Actors	Casual laborers, family members, local artisans	Setup, coordination support, handmade items

The results also show that these actors' interactions provide synergistic benefits that boost company growth. For example, when caterers, decorators, and event planners work together, entire wedding packages are frequently produced, which raises client satisfaction and service demand. The study does, however, also point out obstacles that limit these actors' efficacy, such as restricted access to funding, insufficient assistance with training and company development, and issues in implementing contemporary technologies or marketing tactics. Notwithstanding these obstacles, the wedding value chain shows great promise as a catalyst for MSMEs' expansion, especially when participants take advantage of networks, expertise, and strategic alliances to optimise opportunities within the industry.

4.1.2 MSMEs Categorisation of Wedding Value Chain Actors in Tanzania

The wedding value chain in Tanzania consists of a diverse range of MSMEs that participate in different stages of wedding preparation and execution. These enterprises vary in size, capacity, and level of formality, but together they create a dynamic ecosystem that supports the broader wedding industry. One major category includes businesses involved in bridal and groom attire, such as individual tailors, home-based dressmakers, and local accessory makers who typically operate as micro enterprises. Small bridal shops and suit rental outlets fall under small enterprises, while established fashion houses that design and produce wedding garments represent medium-sized enterprises.

Another important group of MSMEs include firms that provide catering, food, and beverage services. Micro-level actors in this segment include home-based caterers, small-scale cooks, and local bakers who supply cakes and snacks. Small enterprises typically operate as registered catering companies capable of serving mid-sized wedding events, while medium enterprises consist of large catering firms and food production companies that provide full-service

wedding packages. Similarly, the décor, venue, and event setup category consist of micro décor teams, small tent and chair rental operators, and small florists. Larger décor companies and event production firms managing big venues or offering sophisticated décor packages represent the small and medium categories, respectively.

Photography, videography, and media services also form a significant part of the wedding value chain. Freelance photographers and videographers with basic equipment often operate as micro enterprises, while small photography studios offering wedding packages fall into the small enterprise group. Medium-sized enterprises in this segment include well-established media production firms with advanced equipment and larger teams. Likewise, the entertainment segment consists of individual Disc Jockey (DJ), Master Ceremonies (MCs), and traditional dancers who act as micro enterprises, small entertainment bands that fit into the small enterprise category, and larger professional entertainment agencies classified as medium enterprises.

Additional categories include beauty and personal care services, transport and logistics, stationery and printing, and wedding planning and coordination. Beauty services are provided by freelance makeup artists and hair stylists at the micro level, small beauty salons at the small enterprise level, and full-service beauty centers at the medium level. Transport services range from individual car owners and motorcycle riders (micro) to car hire companies (small) and fleet-based logistics firms (medium). Printing and design for invitations and banners involve small graphic designers or printers as micro actors, printing shops as small enterprises, and larger print service firms as medium enterprises. Wedding planning is carried out by individual planners operating informally, small planning companies with employees, and medium-sized event management firms offering integrated services.

Overall, this categorisation highlights the wide range of MSMEs that contribute to the wedding industry in Tanzania. Understanding these categories helps in identifying the actors involved, analysing their roles, and designing targeted interventions that promote enterprise growth and strengthen the wedding value chain.

Figure 2 shows that catering, food, and beverages account for the largest share of Micro (17.6%), Small (19.0%), and medium (18.2%) enterprises in the wedding value chain across the selected regions in Tanzania, followed by beauty and personal care (Micro 15.7%, Small 15.2%, and medium 15.9%) enterprises, and bridal, groom attire, and fashion services (Micro 13.7%, Small 14.3%, and medium 13.6%). In contrast, stationery and printing represent the smallest segment (Micro 6.9%, Small 6.7%, and medium 6.8%), followed by wedding planning and coordination (Micro 5.9%, Small 6.7%, and medium 9.1%), and entertainment and DJs (Micro 10.8%, Small 7.6%, and medium 6.8%). These findings provide important insights for policymakers and decision-makers in designing targeted interventions to support wedding value chain actors within the tourism sector.

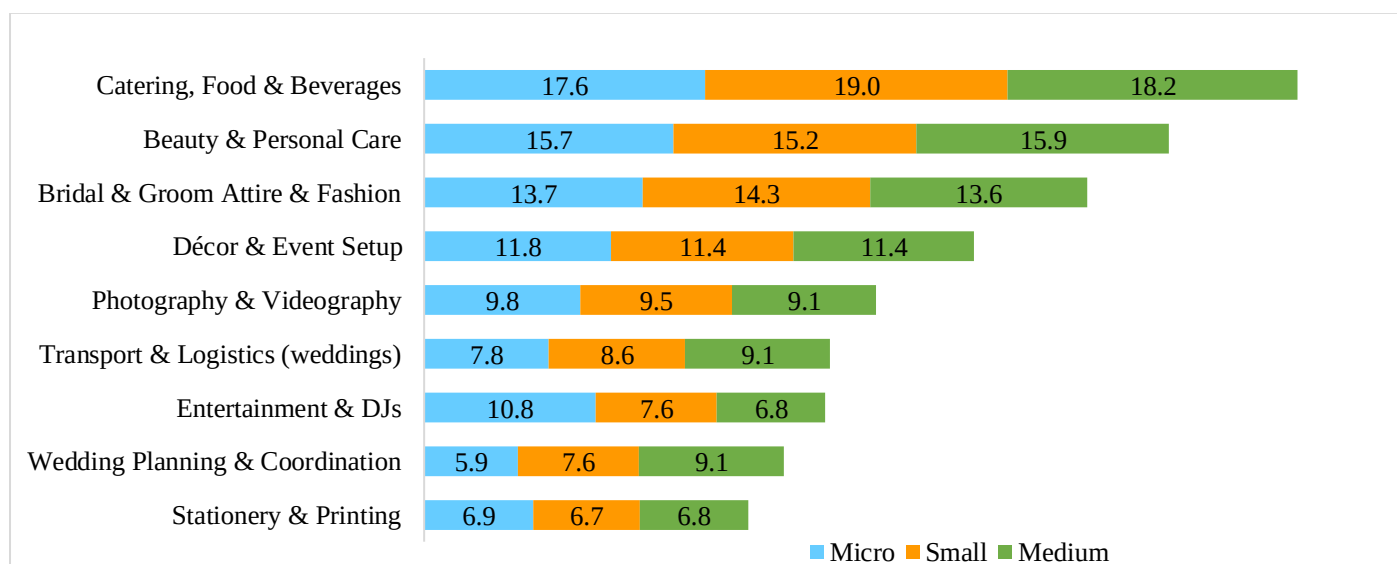


Figure 2

Estimated MSME Counts by Wedding Value Chain Segment in Selected Regions in Tanzania

4.1.3 Contribution of Wedding Value Chain Actors to the Growth of MSMEs in Tanzania

According to Figure 3, the majority (48.3%) of wedding value chain actors reported that their businesses have a very high impact on the MSMEs performance, and 37.5 percent of the operators commented that wedding value chain actors have a strong influence on the MSMEs in Tanzania. The wedding value chain operators provide a variety of services, such as catering, hair beauty, pedicure, event planning, decoration, photography, clothing, entertainment, and transportation, all these generate a substantial revenue in turn support businesses to grow.

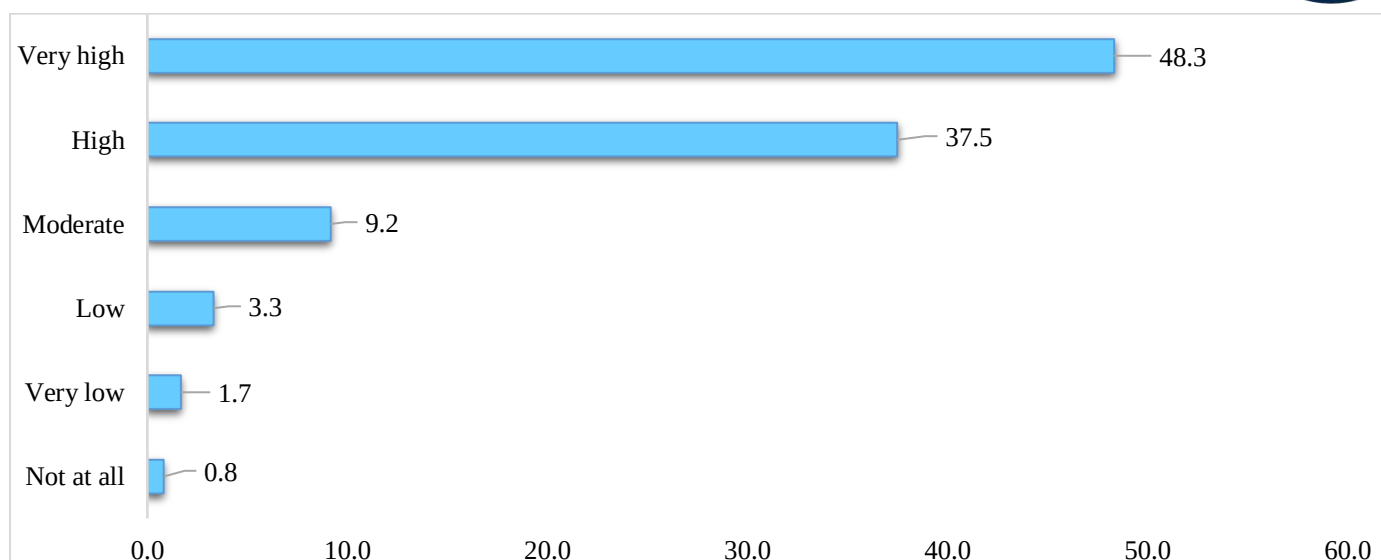


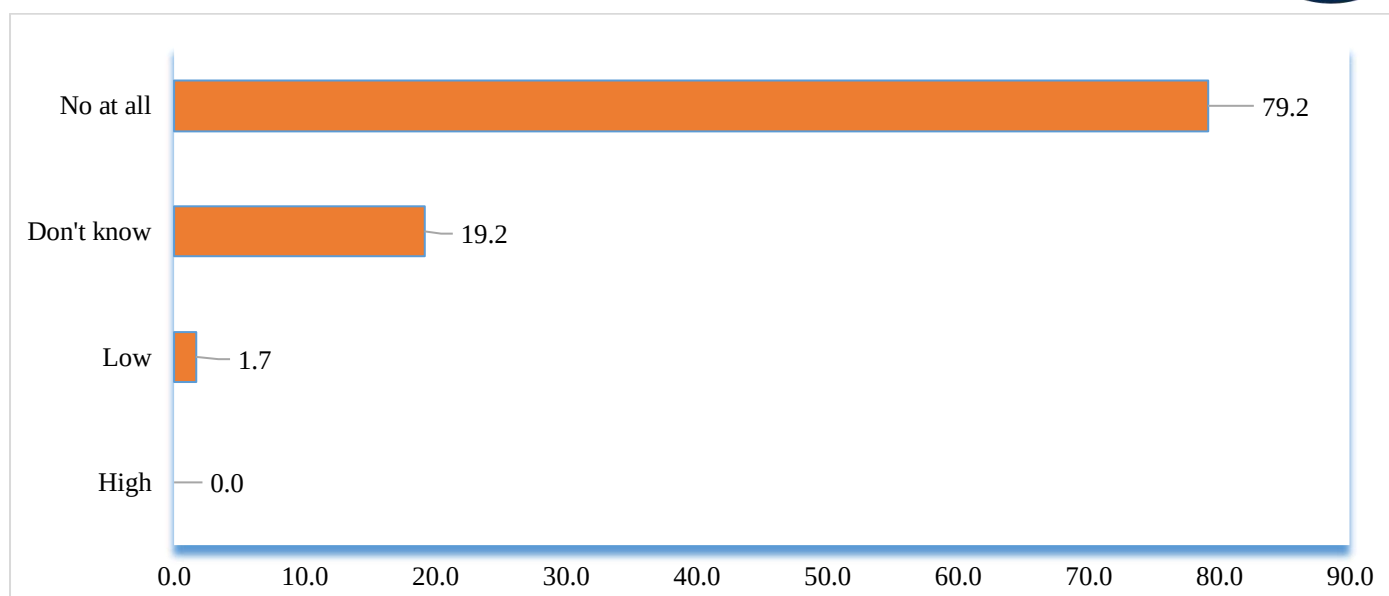
Figure 3
Contribution of Wedding Value Chain Actors to the Growth of MSMEs in Tanzania

“My catering enterprise supplies meals and refreshments for kitchen parties, send-off ceremonies, and wedding events on an almost weekly basis throughout the year. I have operated in this sector for more than a decade. Income generated from the catering business has enabled me to establish complementary ventures, including a tailoring enterprise as well as poultry and dairy farming. These businesses are interlinked and mutually reinforcing, contributing to sustained income diversification and resilience.” (Jeniphar Mwita (not really name), a prominent wedding value-chain actor, Dar es Salaam, 12 December 2025, 10:30 a.m.)

4.1.4 Inadequate Coordination among the Wedding Value Chain Actors

Figure 4 indicates that the majority of respondents (79.2%) stated that there was no coordination, followed by 19.2 percent of those who seemed did not know whether there was coordination or not among the wedding value chain actors in their areas of operation. On the contrary, 1.7 percent of the operators stated that there was low coordination, and none reported on high coordination. It was further discovered that, wedding value chain actors operate in isolation of the other. The actors were competing and considered their peers as rivals. The study further found that the inadequate of coordination was one of the major issues businesses in the wedding value chain face, which limits the industry's ability to spur company expansion. With little communication or cooperation with other service providers including caterers, decorators, photographers, and event planners, many MSMEs run autonomously. This disjointed strategy frequently leads to few commercial opportunities, redundant services, and ineffective service delivery.

“A peer weddings service provider is willing to sub-contract another service provider to offer services at a wedding, for profit maximization. Greedy, and selfishness are the major stumbling block for the growth of businesses. We do not work as one”. (Latifa Omar (not real name), one of the Décor service providers, Dar es Salaam, 28 November 2025, 14:30 p.m.)

**Figure 4**

Coordination among the Wedding Value Chain Actors

Similarly, 74.5 percent of the value chain actors stated that the absence of coordination hinders MSMEs' ability to share knowledge and develop their capacities. In the same vein, the majority of the actors noted that there were fewer opportunities to adopt creative service delivery models, access common resources, and learn best practices when they operate independently. The operators also stated that collective bargaining, marketing, and advocacy all of which could improve MSMEs' competitiveness and sustainability were hindered by the lack of official forums or associations for cooperation. Conversely, the actors established that the division amongst themselves were a major obstacle to business growing and long-term growth in an industry where success frequently depends on integrated service packages and customer referrals.

4.1.5 Inadequate Social Capital and Networks among Wedding Value Chain Actors

This study refers to social capital as a network or web of connections and the standards of cooperation, reciprocity, and trust that support coordinated activity, which is essential to group performance in wedding value chains. Accordingly, this research discovered that when value chain actors lack strong relational ties, trust, and shared norms, information flows become fragmented, collaboration stalls, and opportunities for joint action diminish. It was observed that, in Tanzania's wedding industry, this manifests as service providers working independently rather than as part of cooperative networks that could pool resources, share market intelligence, and coordinate service packages. Interestingly, the survey revealed that, without these social ties, actors incur higher transaction costs, reduced access to collective bargaining power, and limited referral networks, all of which hinder growth and competitive advantage.

Moreover, it was established that the value chain actors, which embrace social capital with solid networks of connections that include peers, suppliers, professional associations, service providers, and community groups, are better positioned to exchange information, access external expertise, and mobilise collective action. Such networks allow actors to share knowledge about market trends, co-create integrated service offerings, and respond more quickly to client demands, enhancing overall value chain coordination. On the contrary, when networks are weak or absent, MSMEs face barriers to cooperation and knowledge sharing that are essential for coordinated service delivery and joint marketing efforts. Thus, the inadequate coordination observed among wedding service providers in Tanzania not only reflects individual competitive behavior but also points to a broader deficit in social capital and networking structures that facilitate mutual support and strategic collaboration.

4.1.6 Limited Capital among the Wedding Value Chain Actors

Figure 5 indicates that insufficient financing is a major issue limiting the expansion of MSMEs in Tanzania's wedding value chain. Many micro and small businesses, such as caterers, decorators, photographers, and event planners, have limited funding, which limits their capacity to grow, make investments in cutting-edge machinery, or provide services that are competitive. For example, photographers and videographers might not have access to sophisticated cameras and editing tools, while decorators might not be able to buy premium materials or props. Due to this financial constraint, MSMEs are frequently unable to participate in larger-scale events or satisfy the increasing needs of their clients, which limits their ability to generate income and grow their businesses over the long run.

“The provision of services to meetings and events, especially weddings are highly profitable businesses. The biggest obstacles for the majority of the beginners like me, is the insufficient operating capital. During the peak season in June through October, we often get businesses and fail to meet their demand to insufficient capital. Unfortunately, securing a loan from banks is almost impossible due to their conditions”. (Levina Mwita (not real name), a wedding service provider, Mwanza, 12 November 2025, 13:15p.m).

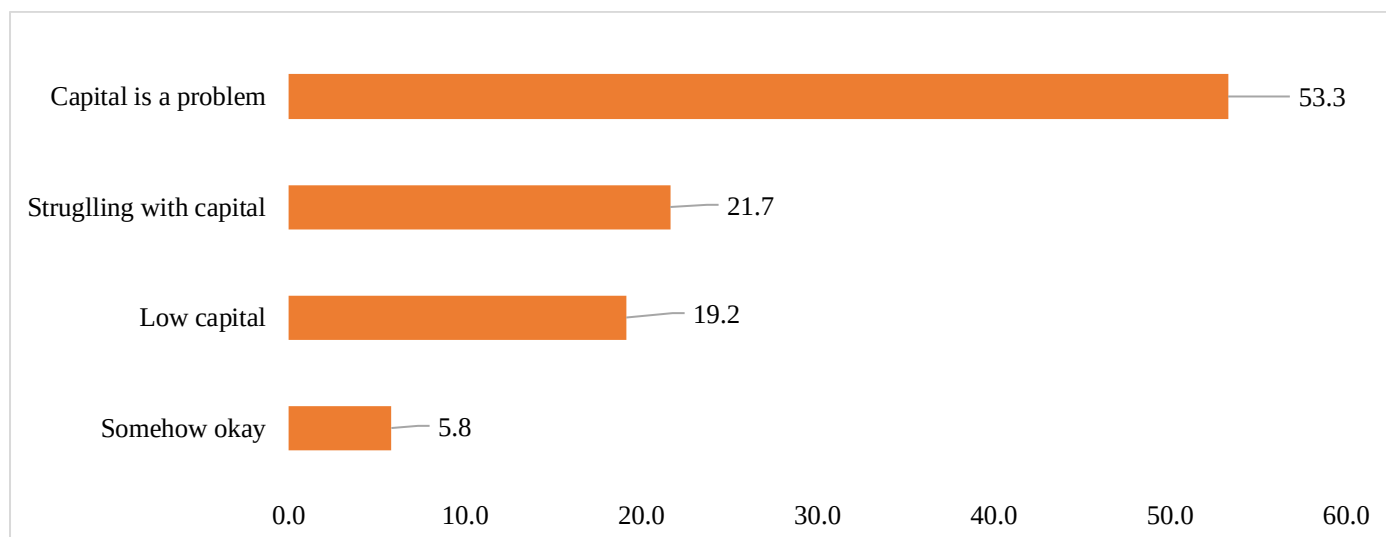


Figure 5
Operating Capital among the Wedding Value Chain Actors

According to Figure 5, 53.3 percent of the wedding value chain actors stated that capital was a major constraint in their businesses, followed by 21.7 percent of the actors who noted that they were struggling with capital in their endeavours, and 19.2 percent of the businesses demonstrated that there were operating with minimal capital. Only 5.8 percent of the actors stated they were somehow fine in terms of operating capital. The findings show that the majority of business owners rely on high-interest loans or personal savings, which restricts their ability to grow and puts them at risk financially. The value chain actors further argued that the due to the lack of collateral, lack of awareness about funding options, and restricted access to formal financial institutions all contribute to the issue, which keep their businesses small and prevent them from realising the wedding industry's full economic potential.

4.1.7 Limited Training among the Wedding Value Chain Actors

This study establishes that the absence of sufficient training and opportunity for capacity-building presents another major obstacle for MSMEs in Tanzania's wedding value chain. The majority of performers (87.5%), such as event coordinators, caterers, decorators, photographers, and fashion designers, frequently join the industry without receiving professional training in marketing, customer service, company management, or technical skills pertinent to their particular services. Their capacity to provide top-notch services, effectively oversee company operations, and adapt to changing market needs is hampered by this skills mismatch. For instance, a caterer may be skilled in the kitchen but have trouble with pricing, budgeting, or customer relationship management, which limits their ability to expand and make money.

“I have been in this business of hair beauty and pedicure for the past 24 years. I had never attended any training. I do not know if there is a college for hair beauty and pedicure in Mbeya. If there were colleges that offer short-term training, maybe for 1-2 weeks, I would go. None of the peers I know has ever attended such training here in Mbeya. Lack of proper knowledge is the main problem in this business”. (Adellaïda Mwaseba, a hair beauty and pedicure service provider, Mbeya, 15 December 2025, 16:20 p.m.).

Furthermore, the study argues that the lack of formal training programs limits chances for professional growth, service diversity, and innovation. Wedding value chain operators are less competitive if they are not exposed to contemporary event trends, technical tools, or industry best practices, especially in light of clients' growing demands for innovative, integrated, and expertly performed services. Besides, this survey discovered that inadequate training makes it difficult for MSMEs to implement quality standards, create a professional brand, and use digital marketing, all of which are essential for company growth in a cutthroat urban wedding market. MSMEs in Tanzania's wedding value



chain can improve their skills, productivity, and overall growth prospects by addressing this issue through focused training efforts, workshops, mentorship programs, and partnerships with educational institutions.

4.1.8 Inadequate Coaching and Mentorships among the Wedding Value Chain Actors

This research found that lack of coaching and mentorship opportunities was a major barrier for MSMEs in Tanzania's wedding value chain. Event planners, decorators, caterers, photographers, and fashion designers were just a few examples of micro businesses that run on their own without the assistance of seasoned business owners or industry specialists. Their capacity to handle difficult business problems, implement best practices, and create strategic growth plans was hampered by the lack of mentorship. The long-term viability and competitiveness of wedding value chain participants may be hampered by difficulties with financial management, client relationship management, service innovation, and scaling operations in the absence of mentorship.

Moreover, it was observed that the absence of formal coaching programs limits opportunities for networking, exposure to market trends, and knowledge transfer. MSMEs may overlook crucial tactics for marketing, business growth, and cooperation with other value chain participants if they are unable to learn from more seasoned professionals. In a cutthroat market for wedding services, mentoring may give entrepreneurs, especially women and youth-led companies, practical insights, problem-solving abilities, and the courage to innovate and take measured risks. Consequently, formal coaching, mentorship programs, and peer-learning networks could greatly improve Tanzanian wedding value chain MSMEs' capacity, resilience, and growth prospects while also promoting a more organised and professionalised industry.

4.1.9 Relationship between Findings and Conceptual Framework

The conceptual framework, which views the wedding value chain as an independent variable driving the expansion of MSMEs through business development services and entrepreneurial competencies, is well supported by the research's findings. The findings demonstrate that MSMEs' revenue generation, client base growth, and market exposure are greatly increased when they actively participate in the wedding value chain through services including catering, event planning, fashion, décor, and media. This supports the framework's assertion that value chain participation offers a platform for skill development in addition to market opportunities. For instance, photographers and fashion designers used customer recommendations to grow their service networks, while caterers and event planners reported consistently making money from recurring weddings and related events. According to theories of enterprise development and value chain integration, the wedding industry operates as a commercially viable ecosystem, as demonstrated by these findings, which show a direct correlation between value chain participation and MSME performance (Gereffi et al., 2021).

Additionally, the study shows that the conceptual framework's mediating factors, such as mentorship, training, and financial access, are critical in influencing the rate of MSME growth. Inadequate training, insufficient funding, and poor coordination were identified as major obstacles that lessen the potential advantages of wedding value chain involvement. This result validates the framework's claim, supported by Sang et al. (2024), which although the value chain offers opportunities, MSMEs' capacity to take advantage of them depends on their competencies and access to business development services. Furthermore, the framework's portrayal of inter-firm cooperation is mirrored in the synergistic advantages that are shown when actors coordinate services, like combined décor and catering packages, which improve client satisfaction and service quality. The findings highlight the predictive potential of the framework in connecting structural, relational, and capacity-related aspects to enterprise outcomes. On the other hand, the absence of formal networks and collaboration highlights how gaps in mediation can limit MSMEs' success.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study concludes that the wedding value chain plays a significant and multifaceted role in driving MSMEs growth by providing sustained market demand, income-generation opportunities, employment creation, and pathways for enterprise diversification. The results show that MSMEs can improve company performance and resilience, especially in urban and peri-urban environments, by engaging in wedding-related activities such catering, event planning, décor, fashion, photography, beauty services, entertainment, and logistics. The study does, however, also show that the degree of coordination and social capital among value chain participants, professional training, mentorship, and access to capital all significantly influence the size of this contribution. MSMEs' capacity to fully take advantage of wedding-related opportunities is limited in areas with inadequate networks, coordination, and business development support. As a result, the study confirms that although the wedding value chain is a major factor in the expansion of MSMEs in Tanzania, its full potential can only be achieved through increased institutional support, better inter-firm cooperation, and focused capacity-building initiatives that boost business sustainability and competitiveness.

Furthermore, the study demonstrates that Tanzania's MSMEs have a lot of room to expand and flourish within the wedding value chain. Engaging in wedding-related activities, such as catering, event planning, decorating, clothing, photography, and entertainment, gives MSMEs access to a stable and culturally ingrained market that can improve income generation, job creation, and market expansion. The study also highlights that these businesses' ability to grow depends on their entrepreneurial skills and access to business development services, including funding, market connections, and training. These capacities' mediating role emphasises how crucial it is to combine market possibilities with sufficient resources, talents, and strategic business practices in order to achieve sustained growth within the industry.

Likewise, by demonstrating how culturally significant social occasions like weddings can act as catalysts for entrepreneurship and economic empowerment, the study adds to the larger conversation on MSMEs development. Due to the large number of women-owned and youth-led businesses that provide wedding-related services, it also highlights the gendered aspect of the wedding value chain and the sector's potential to foster inclusive economic growth. The results indicate that specific support interventions, like market facilitation, training programs, and financial access, can greatly improve MSMEs' capacity to efficiently utilise the wedding value chain. Therefore, the wedding industry should be viewed by policymakers, development professionals, and organisations that encourage entrepreneurship as a strategic means of promoting MSMEs expansion, job creation, and socioeconomic development in Tanzania.

5.2 Recommendations

Based on the study's findings, specific and doable recommendations are put forth for important players in Tanzania's tourism, creative economy, and MSMEs development, with a focus on strengthening the wedding value chain and its role in business expansion. *Ministry of Industry and Trade (MIT)*: In order to incorporate the wedding economy into national MSME and industrial development objectives, the Ministry of Industry and Trade should publicly acknowledge it as a strategic subsector within the creative and cultural industries. This entails creating customized policy tools, including streamlined business registration processes, tax breaks for innovative MSMEs, and cluster-based development initiatives that promote cooperation across the wedding value chain participants. In addition to improving access to markets and financing, the establishment of regional wedding and events business hubs would increase coordination and foster collective branding.

Ministry of Culture, Arts, and Sports (MCAS): In order to professionalize wedding-related creative services, such as fashion, décor, photography, music, and performing arts, the Ministry of Culture, Arts, and Sports should create sector-specific rules and capacity-building initiatives. The ministry can improve service quality, preserve cultural heritage, and boost competitiveness in both domestic and foreign markets by endorsing certification programs and national standards for innovative wedding services. Additionally, as part of Tanzania's cultural tourism offerings, MCAS ought to highlight cultural marriages.

Ministry of Education, Science, and Technology (MoEST) and Vocational Education and Training Authority (VETA): MoEST and VETA ought to implement competency-based training programs designed specifically for the wedding and events sector. These programs should encompass topics including customer relations, digital marketing, event management, hospitality service coordination, and creative design. With an emphasis on practical skills, entrepreneurship, and business management for MSMEs, these programs ought to be incorporated into the Technical and Vocational Education and Training (TVET) curriculum and brief professional courses.

Local Government Authorities (LGAs): To improve social capital, trust, and cooperation among MSMEs, LGAs should encourage the establishment and growth of regional wedding and events associations. This can be accomplished by organizing frequent networking events, trade shows, and regional exhibitions where service providers can present their products and form alliances. For creative and event-related businesses to function lawfully and responsibly, LGAs should also allot specific areas and permissions.

Non-Governmental Organisations (NGOs) and Development Partners: For MSMEs in the wedding value chain, NGOs and development partners should create focused enterprise development programs that emphasize digital skills, financing access, and mentoring. Women and youth-owned businesses should receive particular attention because they make up a sizable share of creative service providers. In addition to strengthening social networks, encouraging cooperative models and group savings plans can also lessen financial limitations.

Financial Institutions and Microfinance Providers: Because the wedding industry is seasonal, banks and microfinance organizations should create specialized financial solutions such as asset-based financing, flexible loans, and mobile-enabled savings plans. MSMEs' ability to manage cash flow and make investments in company expansion will be further enhanced by financial literacy training provided in collaboration with NGOs and educational institutions.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.



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Mapping climate change adaptation scholarship in smallholder farming systems across Sub-Saharan Africa: A bibliometric analysis

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ABSTRACT

This study presents a bibliometric analysis of climate change adaptation research in smallholder farming systems across Sub-Saharan Africa (SSA) between 2015 and early 2025. Anchored in the knowledge production systems perspective, which conceptualizes scientific research as shaped by institutional structures, funding architectures, and collaboration networks, the study examines how adaptation scholarship in SSA has evolved within the broader research ecosystem. Drawing on peer-reviewed journal articles indexed in the Scopus database, the analysis examines temporal publication trends, thematic priorities, disciplinary distribution, geographic representation, institutional collaboration networks, and funding structures. A total of 31 Scopus-indexed peer-reviewed articles met the inclusion criteria and were analyzed using Bibliometrix and VOSviewer. The findings indicate a gradual increase in scholarly output, particularly after 2019, reflecting growing international attention to climate-resilient agriculture. However, the indexed literature remains modest in volume and exhibits pronounced structural imbalances. Research is concentrated in agricultural and environmental sciences, with comparatively limited social science integration. Geographic representation is concentrated in a small number of countries, particularly Kenya, South Africa, Ethiopia, Zimbabwe, and Ghana, while parts of Central and West Africa remain underrepresented. Institutional collaboration networks are similarly concentrated, and funding support is predominantly sourced from international donors. Keyword evolution reveals continued emphasis on climate-smart agriculture and food security, alongside emerging attention to participatory approaches and digital agriculture. Overall, the analysis suggests that adaptation scholarship in SSA's smallholder systems is shaped not only by thematic priorities but also by structural factors related to research visibility, funding architecture, and institutional capacity. The study highlights the need for broader disciplinary integration, improved geographic equity, diversified institutional participation, and strengthened domestic research investment to enhance inclusive and context-responsive climate adaptation research in the region.

Keywords: Bibliometric Analysis, Climate Change Adaptation, Research Capacity, Smallholder Farmers, Sub-Saharan Africa

I. INTRODUCTION

Climate change poses escalating risks to agricultural productivity and food security worldwide, with Sub-Saharan Africa (SSA) widely recognized as one of the most vulnerable regions. The region's heavy reliance on rainfed agriculture, combined with limited adaptive capacity and increasing climatic variability, heightens exposure to systemic shocks (Afokpe et al., 2022; Amede et al., 2023). Within this context, smallholder farming systems responsible for the majority of food production in SSA face acute constraints, including limited access to capital, insecure land tenure, inadequate infrastructure, and restricted access to climate-smart technologies (Chavula & Turyasingura, 2021; Jellason et al., 2022).

Since the adoption of the Paris Agreement in 2015, adaptation has gained renewed prominence within international climate governance, reinforced by the United Nations 2030 Agenda for Sustainable Development and the African Union's Agenda 2063. These frameworks have catalyzed expanded funding, institutional programming, and research initiatives focused on climate-resilient agriculture across SSA. Despite growing scholarly attention, the research landscape remains fragmented across disciplines, institutions, and geographic contexts, complicating synthesis and coordinated policy application (Kombat et al., 2021; Tesfahuney & Mbeletshie, 2021).

Bibliometric analysis offers a systematic approach to mapping such fragmented research domains by examining temporal publication trends, thematic priorities, institutional collaboration networks, geographic representation, citation structures, and funding dynamics (Akinyi et al., 2021; Autio et al., 2021). While numerous empirical studies assess localized adaptation practices, fewer investigations have evaluated the structural configuration of adaptation scholarship

itself within SSA's smallholder farming systems. Understanding how research output has evolved, which themes dominate, how disciplines intersect, and how geographic and institutional participation is distributed is essential for identifying structural gaps and informing future research investment.

This study addresses that gap by conducting a bibliometric analysis of peer-reviewed literature indexed in Scopus between 2015 and early 2025. It examines temporal trends, thematic configurations, disciplinary distribution, geographic patterns, institutional collaboration networks, and funding structures in order to reveal the structural dynamics shaping adaptation scholarship in SSA's smallholder systems. By doing so, the study aims to provide evidence-based insights that can strengthen research coordination, enhance policy alignment, and support the development of more inclusive and regionally responsive climate-resilient agricultural strategies.

The remainder of the paper is organized as follows. The next section outlines the methodological approach used for data collection and analysis. The results section presents findings on publication trends, thematic evolution, collaborative networks, and citation patterns. The discussion interprets these results in light of structural imbalances and knowledge visibility dynamics, and the conclusion offers recommendations for advancing adaptation research and policy in SSA.

1.1 Research Objectives

This study addresses the identified research gap by conducting a bibliometric analysis of peer-reviewed literature on climate change adaptation in smallholder farming systems across Sub-Saharan Africa between 2015 and early 2025. Using publications indexed in the Scopus database, the study systematically examines the structure and evolution of adaptation scholarship within this research domain. By mapping temporal publication trends, thematic priorities, disciplinary engagement, geographic representation, institutional collaboration networks, and funding patterns, the study provides a structured overview of how adaptation knowledge related to smallholder farming systems has developed within the region's scientific literature.

The primary objective of this study is to map and assess the development of climate change adaptation research in smallholder farming systems across Sub-Saharan Africa. Specifically, the study pursues the following objectives: (i) to analyze temporal trends in scholarly publications on climate change adaptation in smallholder farming systems across Sub-Saharan Africa between 2015 and early 2025; (ii) to identify dominant research themes and emerging keywords shaping the climate adaptation research landscape within the region; (iii) to examine the geographic and institutional distribution of research output and patterns of collaboration among authors and institutions; and (iv) to assess the funding structures and institutional collaboration networks influencing the development and visibility of adaptation scholarship in Sub-Saharan Africa. By addressing these objectives, the study contributes to a deeper understanding of how adaptation knowledge is produced, distributed, and supported within the region. The findings aim to inform future research investment, strengthen interdisciplinary collaboration, and support the development of more inclusive and context-responsive climate adaptation strategies for smallholder farming systems in Sub-Saharan Africa.

II. THEORETICAL FRAMEWORK

This study is grounded in the knowledge production systems perspective, which conceptualizes scientific research as the outcome of interactions among institutional structures, funding mechanisms, collaboration networks, and publication infrastructures that collectively shape how knowledge is generated, disseminated, and utilized. According to this perspective, scientific output does not emerge in isolation but is embedded within broader social, institutional, and economic systems that influence research agendas, disciplinary orientations, and the visibility of scholarly contributions. Foundational work by Gibbons et al. (1994) and Nowotny et al. (2001) highlights the evolving nature of knowledge production, emphasizing that contemporary research increasingly occurs within distributed networks involving universities, international organizations, and policy institutions.

In the context of Sub-Saharan Africa, the structure of knowledge production systems is strongly influenced by disparities in research capacity, institutional resources, and funding availability. Studies on African research systems have shown that international development agencies and global research institutions play a significant role in shaping research priorities and knowledge visibility within the region (Arvanitis et al., 2022). As a result, patterns of scientific publication often reflect broader structural dynamics related to institutional collaboration, funding architecture, and integration into global academic publishing networks. These dynamics can influence not only the quantity of research output but also the thematic focus and geographic representation of scholarly work.

Applying the knowledge production systems framework provides an analytical lens for interpreting the bibliometric patterns identified in this study. Indicators such as publication trends, disciplinary distribution, institutional collaboration networks, geographic representation, and funding sources can be understood as manifestations of underlying structural conditions within the regional research ecosystem. By situating bibliometric findings within this theoretical perspective, the study moves beyond descriptive mapping of publications and instead highlights how

structural factors shape the development and visibility of climate change adaptation scholarship in smallholder farming systems across Sub-Saharan Africa. This theoretical perspective therefore provides the conceptual foundation for examining publication trends, collaboration networks, and funding structures shaping climate adaptation scholarship in SSA.

III. METHODOLOGY

3.1 Study Design and Approach

This study employed a bibliometric approach to examine peer-reviewed literature on climate change adaptation in smallholder farming systems across Sub-Saharan Africa (SSA). The methodological process was organized into four interrelated stages: database selection and search strategy formulation, eligibility screening, data extraction and preparation, and bibliometric analysis and visualization.

3.2 Database Selection and Timeframe Justification

The Scopus database was selected for its extensive coverage of high-quality peer-reviewed literature across disciplines relevant to this study, including agriculture, environmental science, and development research. All data collection and analysis were conducted exclusively within the Scopus platform to ensure consistency and replicability. The search was limited to journal articles and review papers published between January 2015 and February 2025.

This ten-year window was selected to capture recent developments in climate adaptation scholarship during a period of intensified global policy engagement. Beginning with the adoption of the Paris Agreement in 2015, adaptation gained renewed prominence within international climate governance frameworks. The timeframe also aligns with the implementation of the United Nations 2030 Agenda for Sustainable Development and the African Union's Agenda 2063, both of which emphasize agricultural resilience and climate-responsive development. During this period, international research institutions and development agencies including FAO, IPCC, and CGIAR expanded adaptation-focused programming across SSA.

While a decade may not be sufficient to establish long-term historical trends, it provides a focused lens on contemporary research dynamics within a policy-relevant era. The selected timeframe therefore prioritizes analytical relevance to current climate governance frameworks rather than offering a comprehensive historical account of adaptation scholarship in the region.

3.3 Search Strategy

A structured search strategy using Boolean logic was applied within the Scopus database. The final search string was:

TITLE-ABS-KEY

((("Climate change adaptation" OR "climate adaptation" OR "adaptation to climate change")

AND

("Smallholder" OR "small-scale farmer" OR "subsistence farmer" OR "peasant farmer")

AND ("Sub-Saharan Africa" OR "SSA"))

This formulation was developed following preliminary scoping searches to identify commonly used terminology within the adaptation literature. The inclusion of both “climate change adaptation” and “climate adaptation” ensured capture of studies that refer to adaptation processes with or without explicit repetition of the term “climate change.” The smallholder-related terms were selected to reflect dominant descriptors in agricultural development and adaptation scholarship within SSA. While alternative terminology such as “family farmer” or “resource-poor farmer” is occasionally used, preliminary scoping indicated that such terms are more frequently associated with broader rural development or livelihood studies and are less consistently employed in explicitly climate adaptation-focused research within SSA. The selected search string therefore prioritized conceptual precision and thematic relevance to maintain analytical coherence. The search was restricted to English-language publications, reflecting the dominant language of indexed scientific publishing within the region.

3.4 Eligibility Criteria and Screening Process

Following the application of the search strategy within the Scopus database, the initial query returned a total of 257 documents. Titles, abstracts, and keywords of these records were manually screened to determine their relevance to the research objectives. Documents were included if they (i) were published between January 2015 and February 2025, (ii) were peer-reviewed journal articles, review papers, or book chapters, and (iii) explicitly addressed climate change adaptation in smallholder farming systems within Sub-Saharan Africa.

Documents were excluded if they (i) focused exclusively on climate mitigation, (ii) addressed large-scale, industrial, or commercial agriculture, (iii) examined regions outside Sub-Saharan Africa, (iv) were not published in English, or (v) consisted of conference proceedings, editorials, opinion pieces, or other non-peer-reviewed materials.

The relatively small final corpus ($n = 31$) reflects the highly specific conceptual intersection defined by the inclusion criteria, which required publications to explicitly address climate change adaptation in smallholder farming systems within Sub-Saharan Africa, while also being indexed in Scopus and published in English-language peer-reviewed journals during the 2015–early 2025 period. In bibliometric research, precision in search strategy and conceptual delimitation is essential to ensure thematic coherence and analytical validity (Donthu et al., 2021). Narrowing the dataset to a clearly defined thematic and geographic intersection is consistent with established systematic review and bibliometric protocols that emphasize transparency, replicability, and rigor in eligibility screening (Page et al., 2021). Although broader searches of climate adaptation research in agriculture yield substantially larger bodies of literature, the strict conceptual intersection applied in this study deliberately focuses on a narrower and policy-relevant research niche. Similar focused bibliometric analyses examining tightly defined thematic intersections have reported relatively modest datasets when stringent inclusion criteria are applied. The restricted corpus therefore reflects the analytical precision of the search strategy rather than a lack of research activity in the broader field of climate adaptation. The document selection process is summarized in Figure 1, which presents a PRISMA flow diagram illustrating the stages of screening and exclusion.

3.5 Quality Control Procedures

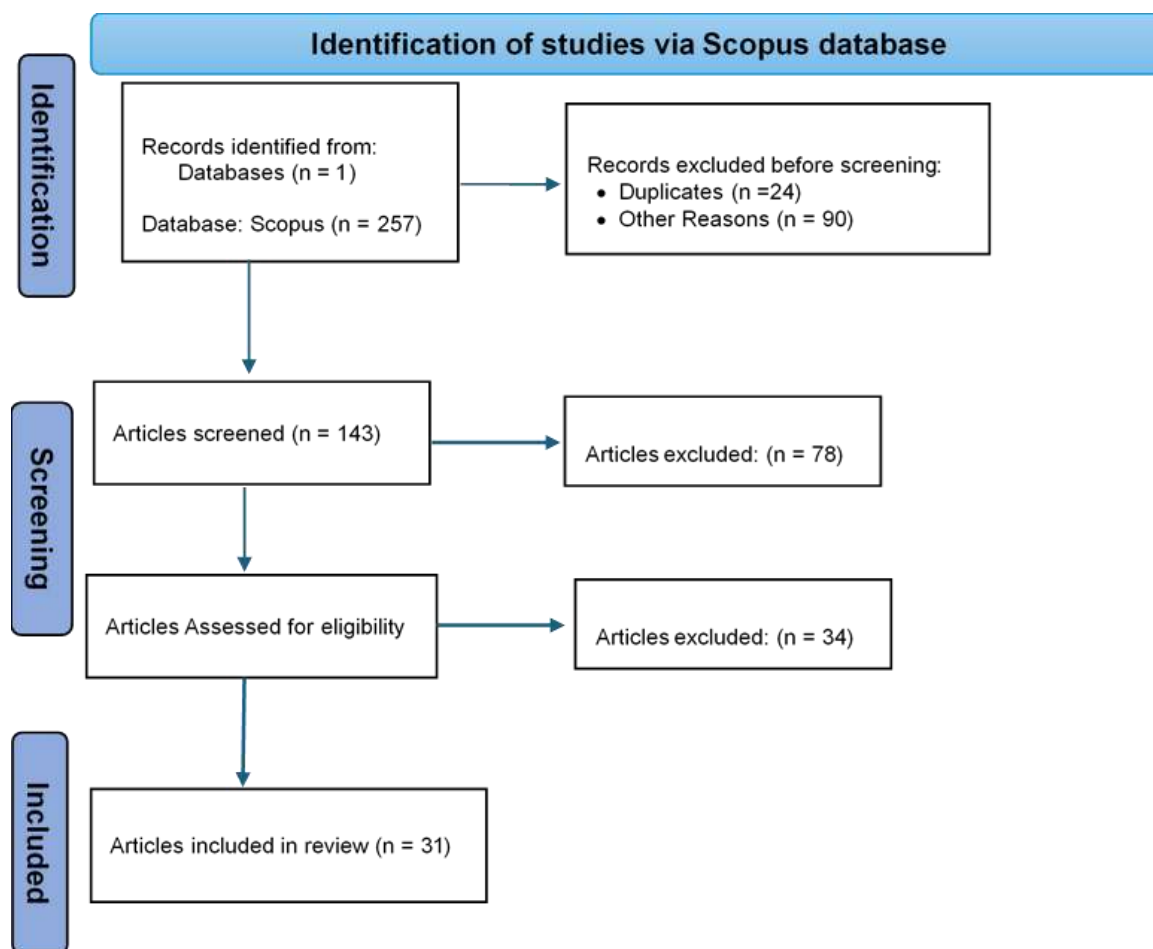
To ensure methodological rigor, screening was conducted by two independent reviewers using a standardized template to maintain consistency. Any discrepancies were resolved through discussion, and when necessary, by consulting a third reviewer. An exclusion log was maintained to document decisions. Bibliographic metadata were cleaned before analysis to remove duplicates, correct inconsistencies in author and institutional names, and normalize keyword variants (e.g., singular versus plural forms), improving the accuracy of network and co-occurrence analysis.

3.6 Data Extraction and Processing

All bibliographic data were extracted directly from Scopus in RIS and CSV formats. The datasets were processed using three tools: Bibliometrix, an R package for advanced bibliometric analysis; VOSviewer, used for visualizing co-authorship networks, keyword clusters, and institutional linkages; and Microsoft Excel was used for managing summary tables and basic descriptive statistics.

3.7 Analytical Indicators and Visualization

The bibliometric analysis focused on several key indicators, including annual publication output, citation metrics, keyword co-occurrence, author collaboration networks, institutional affiliations, geographic distribution of publications, and funding acknowledgment patterns. Visualizations were produced to map collaboration structures, research themes, and institutional and regional contributions. These analytical outputs provided a structured overview of the research landscape in climate change adaptation for smallholder farming systems across SSA.

**Figure 1**

PRISMA Flow Diagram for Article Selection Process

Note. Adapted from Page et al. (2021)

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Publication Trends

The annual distribution of publications (Figure 2) demonstrates a gradual but uneven upward trajectory in scholarly output on climate change adaptation in smallholder farming systems across Sub-Saharan Africa between 2015 and early 2025. During the initial period (2015–2018), publication activity remained sporadic, with one to three articles per year and no publications recorded in 2016 and 2018. From 2019 onward, however, a clearer growth pattern emerges, with output increasing steadily through 2022 and reaching a pronounced peak in 2024 ($n = 10$), the highest annual contribution within the dataset.

The post-2019 acceleration suggests expanding research attention to smallholder-focused adaptation, potentially reflecting the consolidation of funding cycles and the operationalization of global climate policy frameworks. The slight decline observed in 2025 ($n = 2$) should be interpreted cautiously, as the year was incomplete at the time of data extraction. Overall, despite the upward trend, the cumulative volume of publications ($n = 31$) remains modest relative to the scale and urgency of climate adaptation challenges in SSA, indicating both emerging momentum and persistent underrepresentation within internationally indexed scholarship.

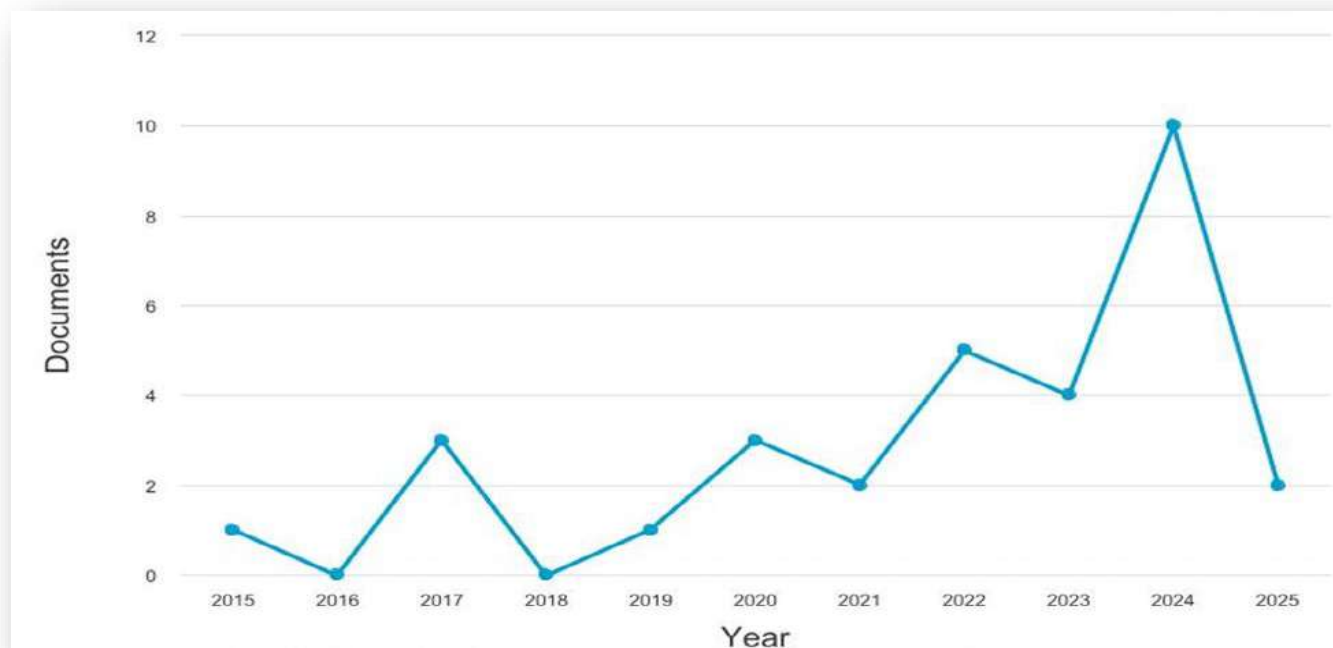


Figure 2
Publication Trends

4.1.2 Document Types and Subject Areas

Among the 31 selected publications, original research articles constitute the largest share (58.1 percent), followed by review papers (29.0 percent) and book chapters (12.9 percent). This distribution indicates a healthy balance between empirical evidence generation and broader thematic synthesis. In terms of disciplinary classification, the publications are predominantly indexed under Agricultural and Biological Sciences (34.5 percent) and Environmental Science (25.9 percent). Social Sciences contribute 10.3 percent, while Economics, Engineering, and Multidisciplinary Sciences each account for approximately 6.9 percent. A few entries also fall under categories such as Business, Management, and Earth Sciences, reflecting the interdisciplinary nature of adaptation research in the SSA context (Figure 3 & 4).

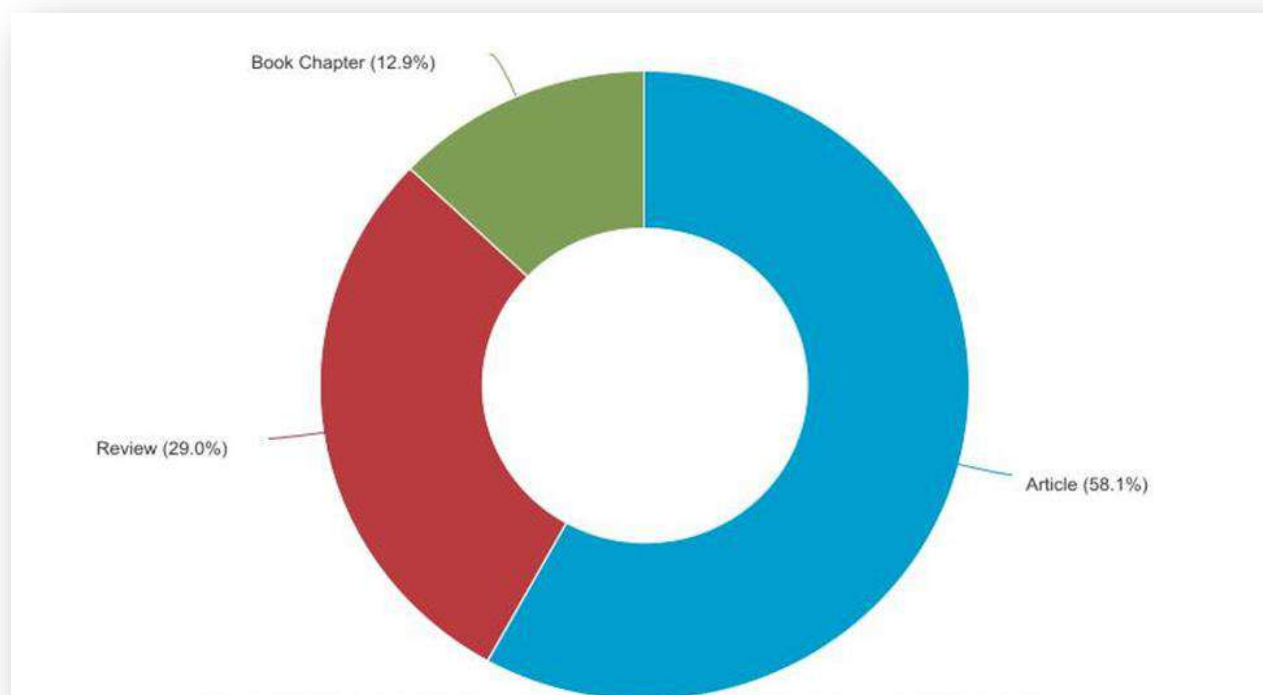


Figure 3
Documents by Publication Type.

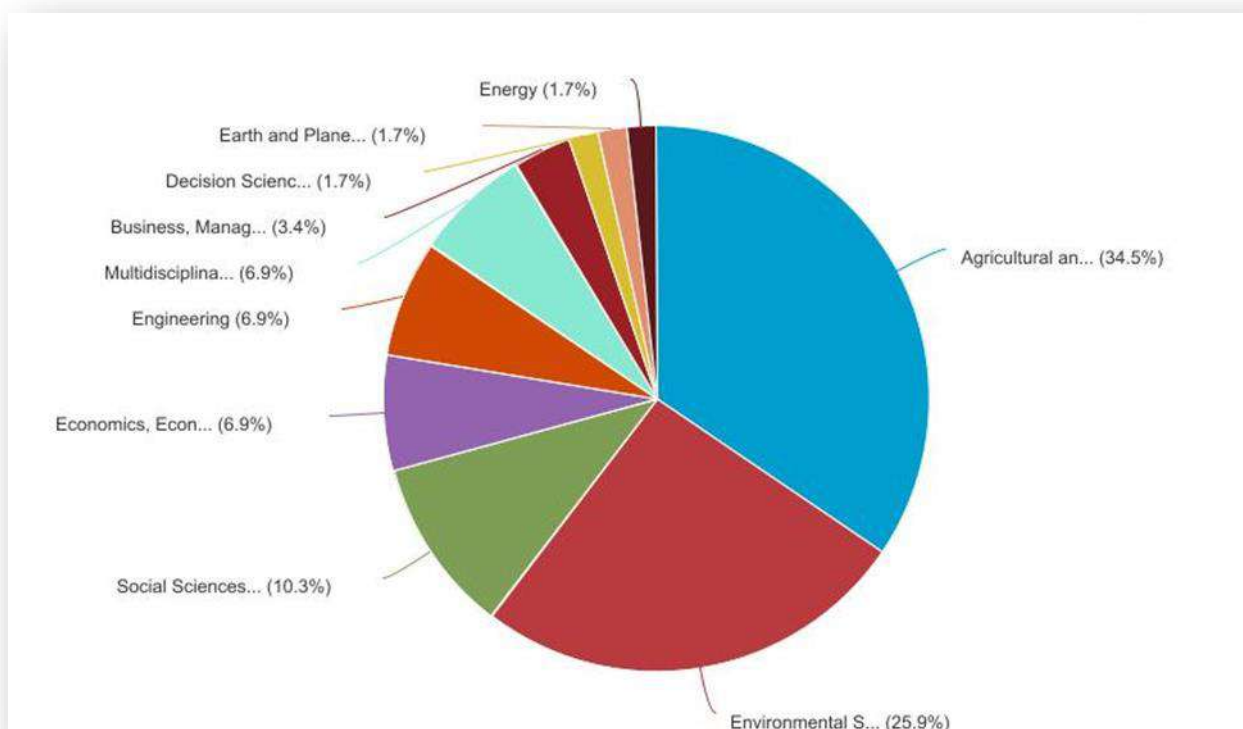


Figure 4
Documents by Subject Area

4.1.3 Geographic Distribution of Research

An analysis of author affiliations shows that research output is concentrated in a limited number of SSA countries. Kenya is the most frequently represented, with 11 documents, followed by South Africa (7), Zimbabwe (6), Ethiopia (5), and Ghana (2). These five countries together account for the majority of SSA-based contributions. Many of the studies include multi-country affiliations, suggesting active regional and international collaboration. However, countries in Central and parts of West Africa are notably underrepresented, pointing to geographic disparities in research capacity and visibility (Figure 5).

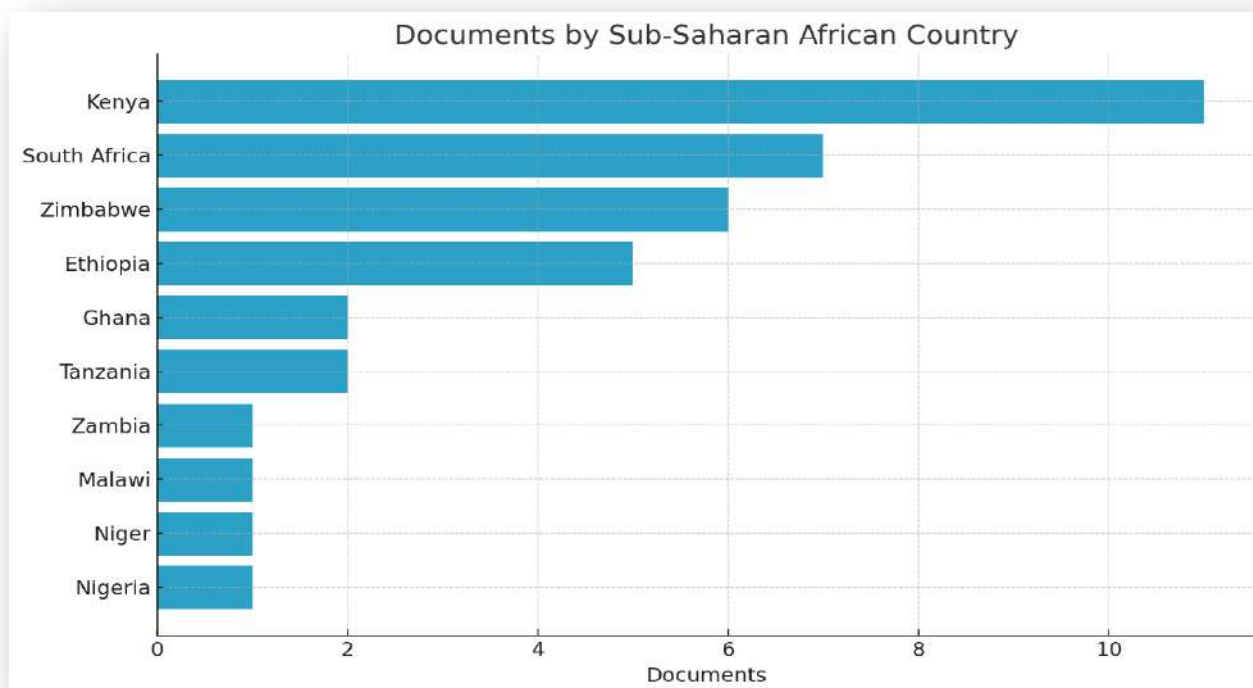


Figure 5
Documents by Country or Territory

4.1.4 Institutional Contributions

Research activity is similarly concentrated among a small group of institutions. The University of KwaZulu-Natal and the University of Zimbabwe each contributed four publications, making them the most prolific institutions in the dataset. They are followed by the University of Nairobi (3), and several others including the International Centre of Insect Physiology and Ecology, Kenyatta University, and the International Livestock Research Institute, each contributing two articles. Additional contributors include the University of Embu, the International Potato Center, and CGIAR-affiliated programs. The presence of both national universities and international research organizations highlights a blend of local and global participation in SSA climate adaptation scholarship (Figure 6).

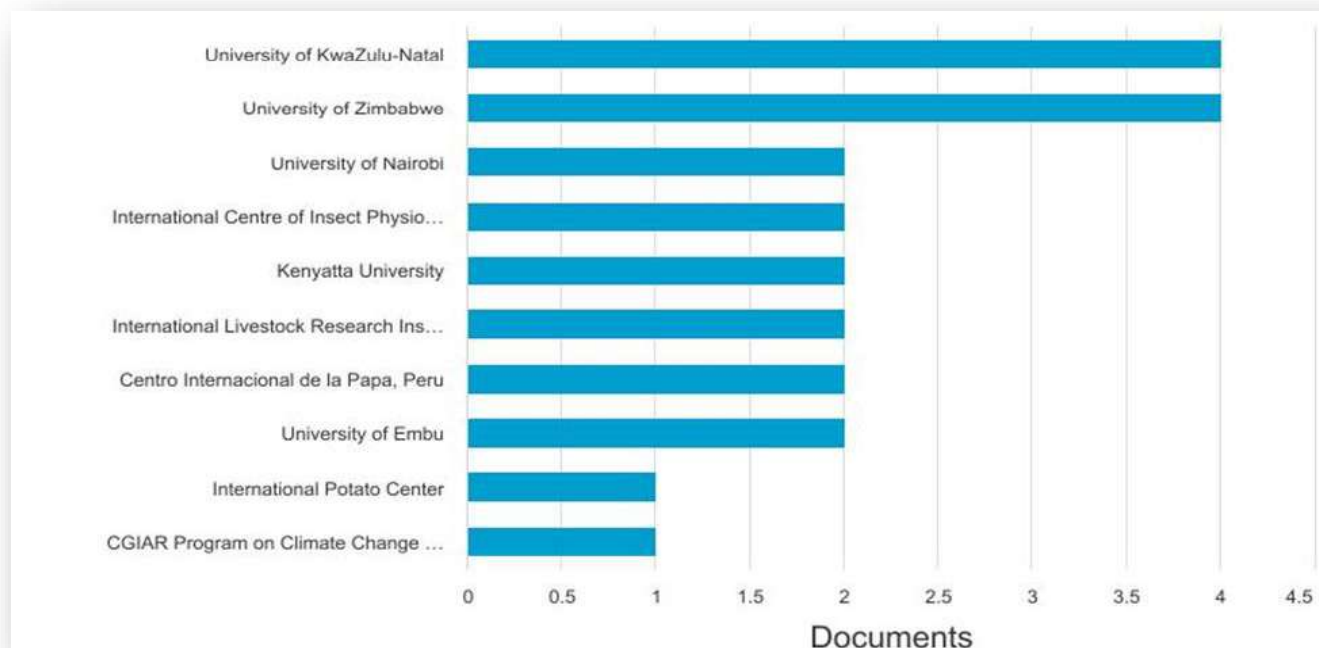


Figure 6
Documents by Affiliated Institution.

4.1.5 Research Themes and Keyword Analysis

The keyword co-occurrence analysis, conducted using VOSviewer, identified several frequently used terms across the dataset. Core terms include "climate change," "climate-smart agriculture," "smallholder farmers," "food security," and "climate change adaptation." These keywords formed thematic clusters that emphasize technical and agronomic approaches to adaptation. Additional keywords such as "resilience," "sustainable development," "agroforestry," "vulnerability," and "conservation agriculture" reflect broader ecological and sustainability concerns.

A temporal overlay revealed that newer terms such as "digital agriculture," "climate variability," and "participatory approaches" have gained traction in recent years, especially between 2018 and 2024. This suggests an evolving interest in innovation, governance, and farmer-centric adaptation strategies. Keyword frequency analysis also indicates that the terms "climate-smart agriculture," "food security," and "smallholder farmers" became especially prominent from 2022 onwards, pointing to growing scholarly attention to resilience-building practices in smallholder systems (Figures 7 and 8).

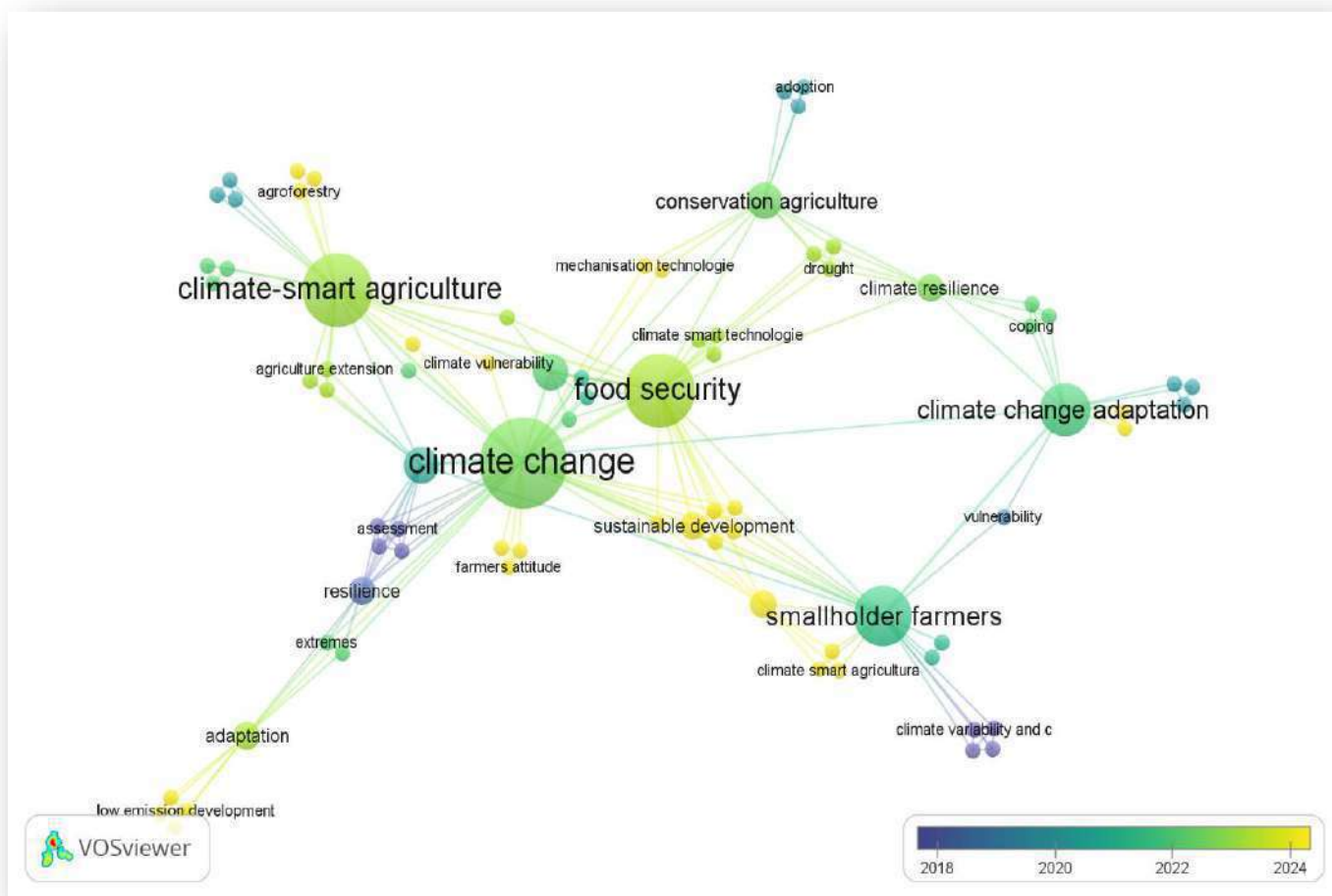


Figure 7
Keyword Co-Occurrence Network Map

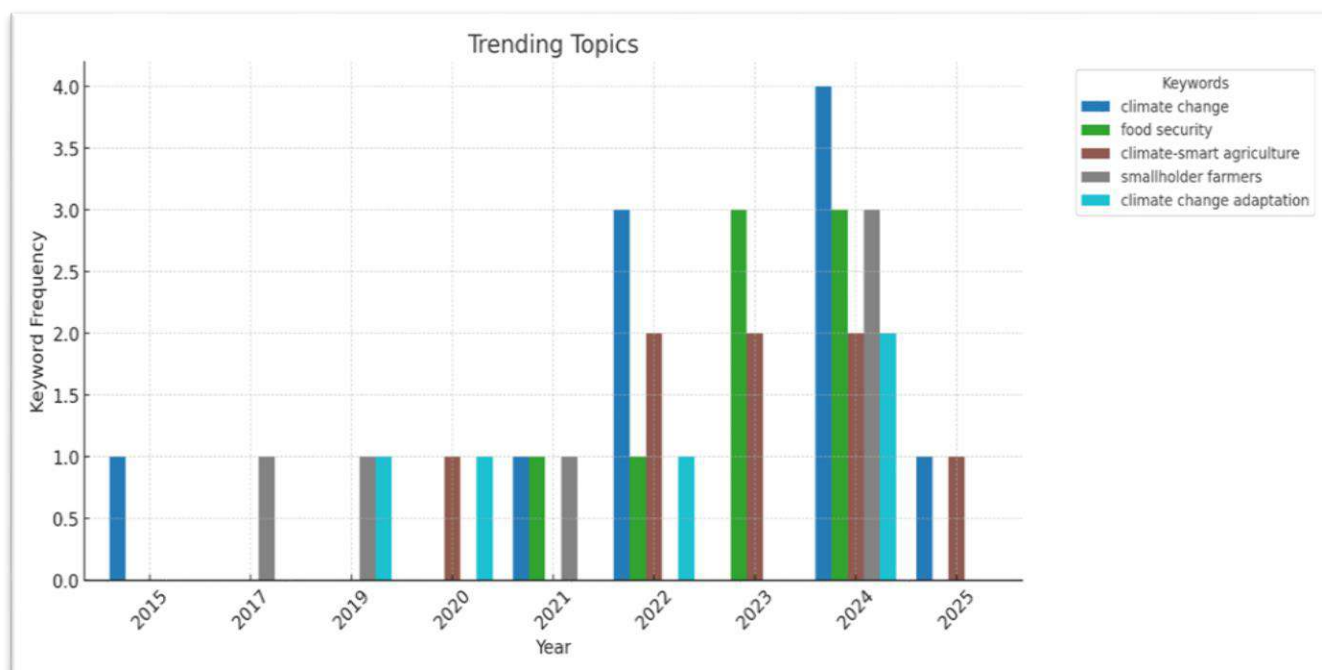


Figure 8
Trending Keywords by Year.

4.1.6 Core Journals and Source Distribution

An assessment of publication sources using Bradford's Law identified a core group of journals contributing the most to the field. These include *Frontiers in Sustainable Food Systems*, *Agriculture (Switzerland)*, *Heliyon*, and the *Journal of Agriculture and Environment for International Development*. These journals specialize in interdisciplinary research at the intersection of agriculture, environment, and rural development. Their prominence reflects a preference for accessible, open-access platforms that are widely read by both academic and practitioner audiences (Figure 9).

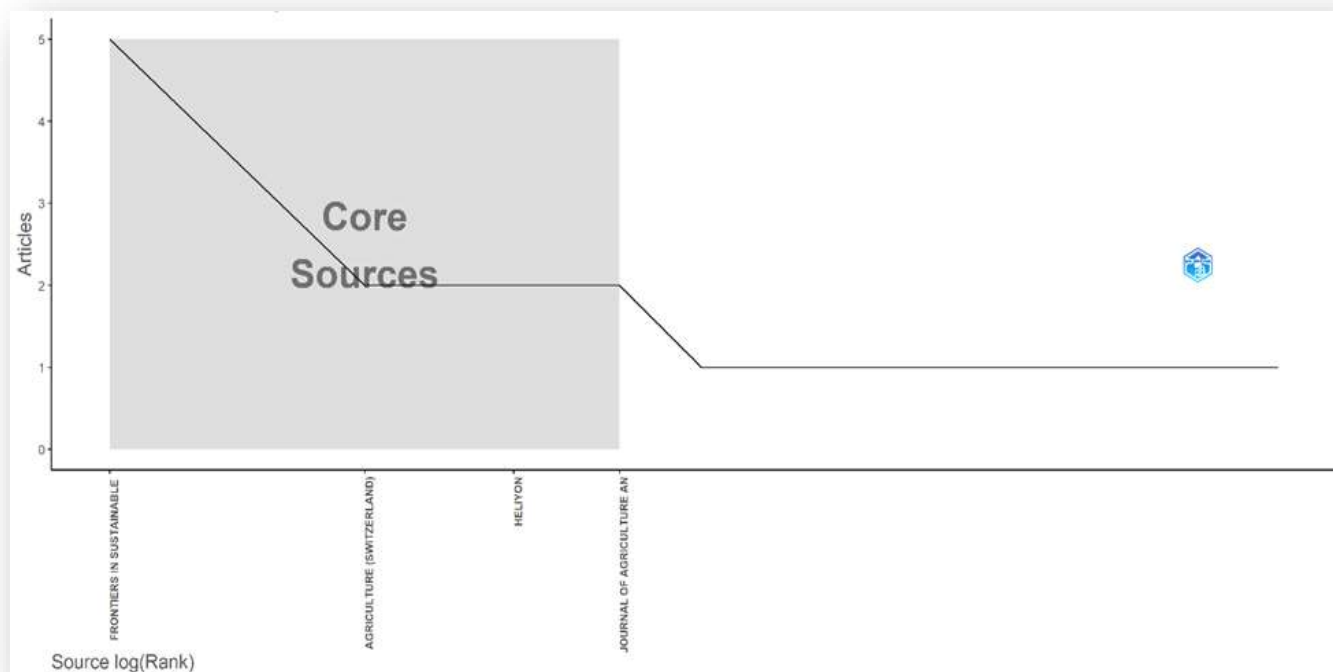


Figure 9
Core sources by Bradford's Law

4.1.7 Influential Articles and Citation Mapping

Citation mapping using a Sankey diagram revealed a set of highly influential publications, primarily addressing themes such as climate-smart agriculture, smallholder resilience, and food security. The diagram illustrates connections among key contributing authors, core references, and dominant research domains. Most frequently cited works are empirical studies or reviews situated within East and Southern African contexts, highlighting a concentration of scholarly influence in specific sub-regions (Figure 10).

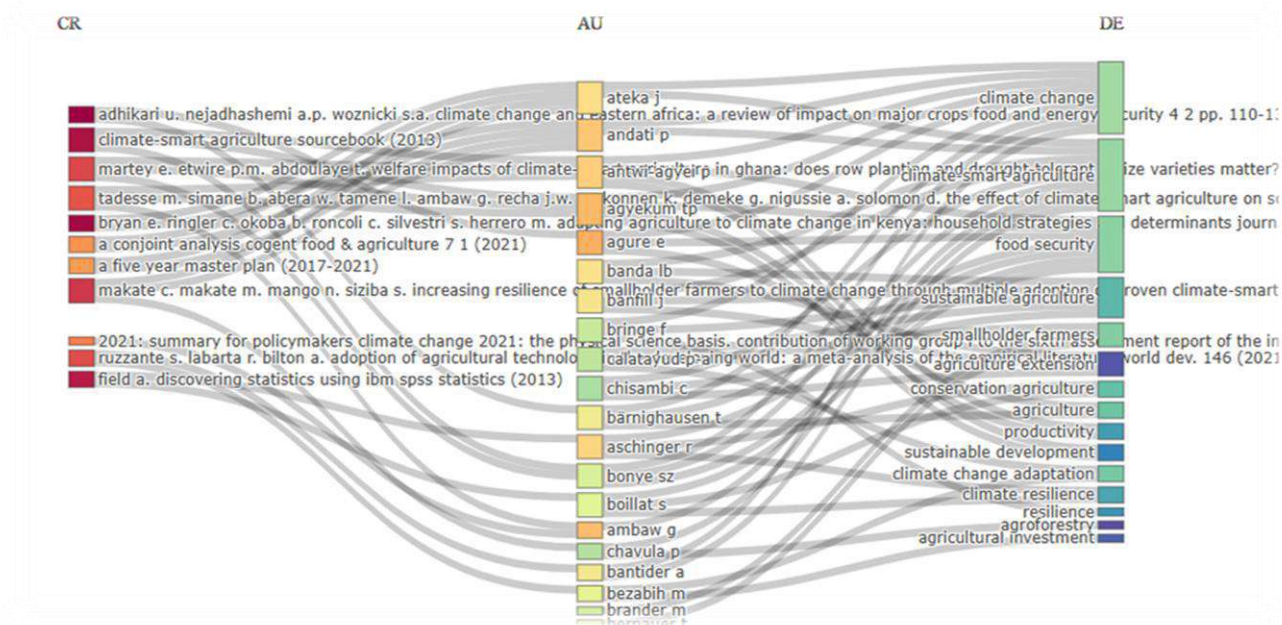


Figure 10
Sankey Diagram

4.1.8 Funding Sources

Funding analysis indicates that the majority of studies were supported by large international donors. The Consortium of International Agricultural Research Centers (CGIAR) appears most frequently, followed by the World Bank Group, the International Fund for Agricultural Development (IFAD), and the Bill and Melinda Gates Foundation. European donors such as GIZ and the Swedish International Development Cooperation Agency (SIDA) also feature prominently. The dominance of external funding sources underscores the strong influence of international development actors in shaping the research agenda for climate adaptation in SSA (Figure 11). Notably, domestic funding from SSA governments or local agencies is almost entirely absent, raising concerns about long-term sustainability and local ownership of research priorities.

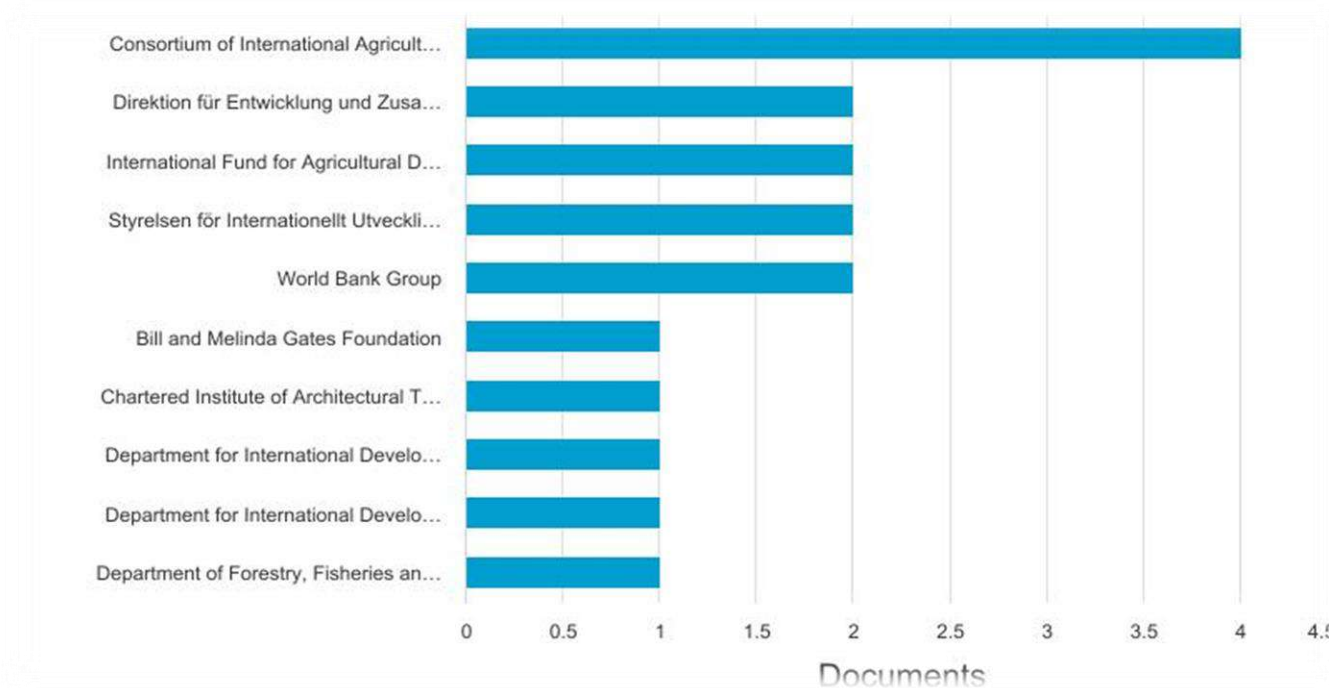


Figure 11
Documents by Funding Sponsor.

4.2 Discussion

The bibliometric analysis of climate change adaptation research in smallholder farming systems of Sub-Saharan Africa reveals several significant patterns and gaps that merit deeper examination. This discussion interprets these findings within the broader context of climate science, agricultural development, and research capacity in the region.

4.2.1 Temporal Evolution and Research Momentum

The publication trajectory between 2015 and early 2025 indicates a gradual but discernible increase in scholarly engagement with climate change adaptation in smallholder farming systems across Sub-Saharan Africa. The acceleration observed from 2019 onward coincides with key developments in global climate governance, including the operationalization of the Paris Agreement and the strengthening of adaptation commitments within international climate negotiations (Arnott et al., 2021). This temporal pattern suggests that international policy frameworks and funding priorities may have stimulated research investment and scholarly attention in this domain.

The publication peak in 2024 may reflect the maturation of multi-year research initiatives initiated in the late 2010s, as well as heightened international emphasis on climate-resilient agriculture within the Sustainable Development Goals agenda. However, despite this upward trend, the overall corpus remains modest ($n = 31$), indicating that smallholder-focused adaptation research within internationally indexed literature remains underdeveloped relative to its critical importance for regional food security and climate resilience. Similar patterns of limited adaptation scholarship in developing regions have been documented in broader global assessments of climate adaptation research (Nalau & Verrall, 2021; Berrang-Ford et al., 2021).

Importantly, this temporal growth should be interpreted within the structural constraints discussed earlier, including database selection, language restrictions, and funding asymmetries. The observed increase therefore reflects trends in indexed research visibility rather than definitive measures of total adaptation research activity across SSA.

4.2.2 Disciplinary Integration and Knowledge Structures

The predominance of original research articles (58.1%) indicates a strong emphasis on empirical evidence generation within the field. However, the disciplinary distribution reveals both strengths and structural limitations in the adaptation research landscape. The concentration in Agricultural and Biological Sciences (34.5%) and Environmental Science (25.9%) demonstrates robust natural science foundations. In contrast, the comparatively lower representation of Social Sciences (10.3%) suggests potential gaps in addressing socioeconomic, behavioral, institutional, and governance dimensions of adaptation. Given that smallholder adaptation operates at the intersection of technology, policy, land tenure, gender relations, and local knowledge systems, limited social science engagement may constrain the development of context-sensitive and institutionally grounded adaptation strategies (Nightingale et al., 2020; Nakagawa & Saijo, 2021).

This disciplinary imbalance has important implications for how adaptation challenges are framed and addressed. A research landscape dominated by agronomic and environmental perspectives may prioritize technical interventions, climate-smart agricultural practices, and productivity-enhancing solutions, while comparatively underexamining structural inequalities, power relations, implementation barriers, and governance dynamics. Scholars have cautioned that technocratic framings of climate adaptation risk overlooking social vulnerability, institutional capacity constraints, and political economy dimensions that shape adaptive outcomes (Canosa et al., 2021; Nightingale et al., 2020). Consequently, disciplinary composition may influence not only the types of research questions asked, but also the policy narratives and development pathways that emerge from adaptation scholarship.

At the same time, the observed imbalance may partially reflect structural publication and indexing dynamics rather than the absence of social science research within SSA. Social science scholarship is frequently disseminated through regional journals, policy reports, development agency publications, and institutional working papers that may not be comprehensively indexed in Scopus. Furthermore, interdisciplinary and development-focused research may appear in venues with lower international visibility. The disciplinary distribution observed in this study should therefore be interpreted as indicative of patterns within indexed literature, rather than a definitive measure of overall disciplinary engagement in smallholder adaptation research across Sub-Saharan Africa.

4.2.3 Geographic and Institutional Concentration

The pronounced geographic concentration of research in Kenya, South Africa, Zimbabwe, Ethiopia, and Ghana carries important implications for regional knowledge equity within Sub-Saharan Africa. Several structural factors may help explain this concentration. These countries host some of the region's most established agricultural research institutions and universities, many of which maintain long-standing collaborations with international research organizations and development partners. In addition, stronger integration into global academic publishing networks and the predominance of English-language scholarship may facilitate higher visibility of research outputs originating from these contexts. The underrepresentation of Central and parts of West Africa may reflect structural disparities in research capacity, infrastructure, funding access, and international publication integration (Elouaourt et al., 2025). Such geographic imbalance risks generating adaptation knowledge that does not fully capture the region's diverse agroecological and socioeconomic realities, a concern echoed in broader assessments of African research ecosystems (Ezeh et al., 2021). If adaptation strategies are predominantly informed by evidence from a limited number of national contexts, their broader applicability across SSA may be constrained.

However, these patterns must be interpreted with caution. The observed concentration may not solely indicate uneven research production, but also disparities in indexed research visibility. The reliance on Scopus, while methodologically appropriate for bibliometric consistency, inherently privileges journals embedded within global citation infrastructures. This dynamic tends to favor Anglophone countries and institutions with established international publication networks, while potentially underrepresenting scholarship disseminated through regional, non-indexed, or non-English outlets (Amano et al., 2016; Erick et al., 2025). Distinguishing between research production and indexed research visibility is therefore critical, as publication infrastructure, language policies, and collaborative networks significantly shape global scholarly representation.

Institutional concentration further reinforces these dynamics. The dominance of a relatively small group of universities and internationally connected research centers suggests limited democratization within the indexed literature. While collaboration between national institutions and global research organizations demonstrates productive partnerships, the prominence of established institutions may constrain the visibility of perspectives emerging from smaller or less internationally integrated entities (Graham, 2020; Chigudu, 2024). These patterns align with broader challenges in diversifying climate science leadership across the Global South (Kilungo et al., 2024) and underscore the importance of strengthening inclusive publication infrastructures to enhance equitable representation in climate adaptation scholarship.

Thematic Focus and Emerging Trends: The keyword analysis reveals a research landscape that has traditionally emphasized technical and agronomic approaches to adaptation. The prominence of terms like "climate-smart

agriculture," "food security," and "smallholder farmers" since 2022 reflects alignment with global development frameworks, particularly the Sustainable Development Goals (Oyelami et al., 2023). The temporal evolution toward terms such as "digital agriculture," "climate variability," and "participatory approaches" signals promising shifts toward innovation and farmer-centered methodologies, mirroring evolving priorities in agricultural development literature (McCampbell et al., 2021). However, the relative absence of keywords related to indigenous knowledge systems, gender dimensions, policy implementation, and economic aspects of adaptation suggests potential blind spots in current research (Huntington et al., 2021). These gaps may limit the practical applicability and inclusivity of adaptation strategies being developed, a concern raised by critical scholars.

Funding Dynamics and Research Agenda Setting: Funding analysis indicates that the majority of studies were supported by large international donors, particularly CGIAR, the World Bank Group, IFAD, and the Bill and Melinda Gates Foundation. European development agencies such as GIZ and SIDA also feature prominently. The dominance of external funding sources stresses the strong influence of international development actors in shaping the climate adaptation research landscape within SSA. Notably, domestic funding from SSA governments or local agencies appears minimal within the indexed literature, reflecting broader structural funding gaps documented in African research systems (Arvanitis et al., 2022; Mdoe et al., 2025). Similar financial capacity constraints have been observed in agricultural enterprise contexts, where managerial financial literacy and financial management practices significantly influence performance and investment potential (Mang'ana, 2026; Mang'ana et al., 2024).

Beyond simple funding concentration, these patterns may have substantive implications for research orientation and thematic emphasis. Several of the dominant keywords identified in the analysis particularly "climate-smart agriculture," "resilience," and "food security" align closely with programmatic frameworks promoted by CGIAR and multilateral development institutions. While such alignment reflects important global development priorities, existing scholarship suggests that funding architectures can influence research agendas, conceptual framings, and methodological preferences (Barrett et al., 2020; Canosa et al., 2021). Donor-driven funding mechanisms often emphasize measurable, scalable, and technically framed adaptation interventions, which may partially explain the predominance of agronomic and technological themes within the dataset (Nightingale et al., 2020).

These dynamics raise broader questions concerning research sovereignty and agenda-setting power within SSA adaptation scholarship. Heavy reliance on international funding may orient research priorities toward externally defined development frameworks rather than locally determined knowledge needs (Arvanitis et al., 2022). Although international collaboration and financial support remain essential for advancing climate resilience, strengthening domestic research investment and regional funding mechanisms could enhance contextual responsiveness, diversify research perspectives, and support more locally grounded adaptation strategies (Ochieng et al., 2018; Barrett et al., 2020).

Implications for Future Research and Policy: The findings of this study indicate a research domain that is gaining scholarly momentum yet remains structurally constrained by geographic concentration, institutional clustering, disciplinary imbalance, and funding asymmetries. Addressing these structural limitations is essential for strengthening the knowledge base underpinning climate adaptation in smallholder farming systems across Sub-Saharan Africa (Mdoe et al., 2025b).

First, expanding geographic representation should be prioritized through targeted capacity-building initiatives, regional research networks, and strengthened collaboration with institutions in underrepresented countries (Erick et al., 2025). Enhancing research infrastructure and publication support in Francophone and Lusophone regions is particularly critical to improving equitable scholarly visibility. Second, greater disciplinary integration is needed to complement strong agronomic foundations with deeper engagement from social sciences, governance studies, and political economy perspectives (Nightingale et al., 2020; Canosa et al., 2021). Such integration would enable more holistic adaptation frameworks that account for institutional constraints, power relations, and socioeconomic inequalities shaping smallholder resilience.

Third, diversifying institutional participation beyond a small group of internationally connected universities and research centers could democratize knowledge production and foster context-specific innovation (Ezeh et al., 2021). Strengthening domestic and regional funding mechanisms is equally important. While international donor support remains vital, balancing external investment with national and regional funding commitments would enhance research sovereignty, sustainability, and alignment with locally defined priorities (Barrett et al., 2020). Finally, broadening thematic emphasis to include adaptation governance, indigenous knowledge systems, gender dynamics, and economic dimensions would contribute to more inclusive and implementation-oriented adaptation strategies (Huntington et al., 2021).

The future trajectory of climate adaptation research in SSA will significantly influence policy effectiveness and practical resilience outcomes (Nalau & Verrall, 2021; Berrang-Ford et al., 2021). As climate impacts intensify, closing structural gaps in knowledge production and visibility becomes increasingly urgent. Strengthening equity in research representation, disciplinary integration, and funding architecture will be critical to advancing evidence-based adaptation

pathways that are locally grounded, socially responsive, and regionally inclusive across diverse African smallholder farming systems.

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusion

This bibliometric analysis examined the structural configuration of climate change adaptation research in smallholder farming systems across Sub-Saharan Africa between 2015 and early 2025. By systematically mapping publication trends, thematic priorities, geographic representation, institutional collaboration networks, and funding dynamics, the study provides a structured overview of how climate adaptation knowledge related to smallholder farming systems has evolved within internationally indexed scientific literature during the Paris Agreement era. The analysis reveals that although scholarly engagement with smallholder-focused climate adaptation has increased in recent years, the overall body of indexed literature remains relatively modest. Moreover, the research landscape is characterized by notable structural imbalances in geographic representation, disciplinary integration, institutional participation, and funding architecture.

The findings indicate that the effectiveness of climate adaptation policy in Sub-Saharan Africa will depend not only on generating additional research, but also on transforming the ways in which knowledge is produced, funded, and disseminated. The study therefore contributes to the emerging literature on climate adaptation knowledge systems by highlighting how structural factors such as publication infrastructure, funding architecture, and institutional collaboration networks shape the visibility and direction of adaptation scholarship in the region. As climate impacts intensify and the vulnerability of smallholder farming systems deepens, addressing structural inequities in research visibility and capacity becomes increasingly critical. Without broader geographic inclusion, stronger integration of social science perspectives, and more diversified funding mechanisms, adaptation scholarship risks reinforcing existing structural asymmetries rather than supporting regionally responsive resilience strategies.

5.2 Recommendations

Based on the findings of this study, several priorities emerge for strengthening climate change adaptation research related to smallholder farming systems in Sub-Saharan Africa. First, expanding research capacity and publication support in underrepresented regions particularly in Central and West Africa as well as in non-Anglophone countries is essential for improving geographic equity in climate adaptation scholarship. Strengthening research infrastructure, training opportunities, and publication support mechanisms can enhance the visibility of locally grounded knowledge and broaden regional representation in international research databases.

Second, greater interdisciplinary integration is needed to complement the strong presence of agricultural and environmental sciences with deeper engagement from social sciences, governance studies, and political economy perspectives. Such integration would enable a more comprehensive understanding of the socioeconomic, institutional, and policy dynamics that shape smallholder adaptation processes. Third, rebalancing research funding structures is critical for improving long-term sustainability and research sovereignty in the region. Increasing domestic and regional investment in climate adaptation research alongside continued international collaboration would help align research agendas more closely with locally defined priorities and development needs.

Finally, future bibliometric research should broaden database coverage, incorporate non-English scholarship, and integrate qualitative assessments of policy uptake and practitioner engagement. Expanding analytical approaches in this way would provide a more comprehensive understanding of how adaptation knowledge is generated, disseminated, and applied within smallholder farming systems across Sub-Saharan Africa.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Determinants of access to tax information among small and medium enterprises: A case of the Kariakoo tax region, Tanzania

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ABSTRACT

Access to accurate and timely tax information is essential for enhancing tax compliance and operational efficiency among small and medium enterprises [SMEs]. In Tanzania, SMEs constitute a significant portion of the economy, yet they often face systemic barriers that limit access to vital tax-related information. This study investigates determinants influencing access to tax information among SMEs within the Kariakoo Tax Region. It examines the extent of access to tax information and assesses factors affecting it. The study adopted institutional theory. A descriptive research design with quantitative and qualitative approaches was employed. Stratified random sampling selected 156 SMEs among 255 SMEs. Data was collected through structured questionnaires and analyzed using SPSS, and thematic analysis supported interview findings. The study found that access to tax information among SMEs was moderate. The most used sources of tax information were the TRA website (43.6%), fellow networks (44.2%), and social media platforms (50.4%). Furthermore, the study reveals that business experience ($\beta = 0.454$, $p < 0.001$), financial literacy ($\beta = 0.185$, $p = 0.026$), technological infrastructure ($\beta = 0.175$, $p = 0.03$), and language and communication ($\beta = 0.240$, $p = 0.004$) significantly influenced access to tax information. The study concludes that access to tax information among SMEs is moderate. Access to tax information is influenced by demographic attributes and institutional and infrastructural factors. The study recommends that the Tanzania Revenue Authority invest in digital infrastructure and promote digital inclusion to enable wider access to online tax information platforms. Also, the Tanzania Revenue Authority should initiate focused interventions on enhancing financial literacy, strengthening advisory support, and simplifying communication strategies.

Keywords: Determinants of Tax Information, Kariakoo, Small and Medium Enterprises, Tanzania

I. INTROUCTION

Tax information refers to the set of data, guidelines, laws, and procedural details required for taxpayers to understand and meet their tax obligations (Blank & Glogower, 2022). It includes the comprehensive data, instructions, regulations, and procedural guidelines issued by tax authorities to support compliance with legal tax requirements (Blank & Glogower, 2022). This covers tax registration, filing requirements, payment deadlines, rates, exemptions, penalties, and dispute-resolution procedures. Access to tax information is vital for SMEs because it improves compliance, reduces unintentional mistakes, and lowers the risk of penalties (Musimenta, 2020). Informed taxpayers file accurately and on time, enhancing revenue collection (Keis, 2024). Equipping SMEs with tax knowledge strengthens growth, sustainability, and formal-economy integration (Mwaweza, 2025).

Globally, access to tax information differs considerably between developed and developing economies. In high-income countries such as the United Kingdom, China, and Australia, access is generally high due to advanced digital platforms, automated reminders, and tailored support services that simplify taxpayer engagement (Ouyang et al., 2023; Woellner et al., 2020). In contrast, many developing countries, particularly within Sub-Saharan Africa, continue to face significant constraints in delivering tax information effectively (Okeke et al., 2023). Evidence from Rwanda, Ghana, and Kenya shows that SMEs especially rural and micro-scale enterprises struggle to obtain necessary tax information (Okunogbe & Santoro, 2023a; Widjaja, 2024).

In Tanzania, SMEs encounter persistent barriers that limit their ability to comply with tax requirements. These include insufficient knowledge of tax responsibilities, challenges in determining tax liabilities, frequent changes in legislation, and limited access to advisory support (Keis, 2024; Alabede *et al.*, 2022). Many SMEs also operate informally, lacking skilled staff and adequate resources for managing financial and tax matters (Omary & Pastory, 2022).

To mitigate these challenges, the Tanzania Revenue Authority has introduced digital platforms, strengthened outreach programs, and expanded the use of Electronic Fiscal Devices to support compliance (Tanzania Revenue Authority [TRA], 2021; Mwenda & Mwakolo, 2024). However, gaps remain due to low digital literacy, language-related barriers, and inconsistent internet access (Ollerenshaw *et al.*, 2021). Access to tax information continues to depend on factors such as tax authority efficiency, taxpayer education, digital adoption, firm characteristics, and legal clarity (Bird, 2015; Kemmeren *et al.*, 2020; Youde & Lim, 2023).

1.1 Statement of the Problem

Access to accurate and timely tax information is essential for effective tax compliance, particularly among SMEs in developing economies. SMEs in Tanzania faced with limited access to relevant tax information (Mwenda & Mwakolo, 2024). Consequently, many SMEs remain unaware or misinformed about their tax obligations, leading to low tax morale and growth of the informal sector, which undermines the national tax base (Maseko & Sawe, 2022). To address the challenge of limited access to tax information, it is essential to understand the determinants influencing access (Omary & Pastory, 2022).

Various studies across different countries have identified key factors influencing access to tax information among Small and Medium Enterprises (SMEs). Limited taxpayer education, complex tax systems, and weak outreach efforts have been found to hinder access to information (Simiyu *et al.*, 2024; Rajamani *et al.*, 2022). Moreover, studies by (Mpofu, 2022; Mohammed & Bunyaminu, 2021; Okunogbe, & Santoro, 2023b) highlighted issues such as bureaucratic inefficiencies, distrust in tax institutions, and poor information dissemination as barriers to access to information. Similarly, Musimenta (2020); Simiyu *et al.* (2024); Mchukwa & Mbwambo *et al.*, 2026) identified limited ICT access, inadequate taxpayer support services, and low levels of formal education among SME owners as major constraints of access to tax information.

Previous studies in Tanzania have highlighted several barriers affecting access to tax information among SMEs. Studies found that low levels of formal education, limited access to ICT, weak dissemination strategies and insufficient outreach programs have significantly hindered the flow and access to tax information among SME operators (Omary & Pastory, 2022; Mwesiga & Twamzihirwa, 2024; Mwaweza, 2025). While existing literature provides valuable insights into the dissemination strategies and educational barriers to tax information access, there is limited empirical research in Tanzania that specifically explores the determinants of access to tax information among SMEs.

Most existing research has predominantly focused on technological and organizational factors that influence access to tax information, with limited attention to the interpersonal, financial literacy, regulatory framework and support services and advisory. This has resulted in a knowledge gap regarding the interaction between organizational strategies and individual SME characteristics in shaping information access. Therefore, this study aims to contribute to the existing body of knowledge by identifying the determinants of access to tax information among Small and Medium Enterprises within the Kariakoo Tax Region in Tanzania.

1.2 Research Objectives

- i. Examine the extent of access to tax information among Small and Medium Enterprises operating at Kariakoo.
- ii. Assess factors influencing access to tax information among Small and Medium Enterprises operating at Kariakoo.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Institutional Theory

The theoretical framework for this study is anchored in Institutional Theory, originally developed by Meyer and Rowan (1977) and expanded by DiMaggio and Powell (1983). According to Scott (2013), this theory asserts that organizations are shaped not only by internal efficiency considerations but also by the institutional environment, encompassing regulatory frameworks, normative expectations, and cultural-cognitive pressures that define legitimate behavior. Institutional theory identifies three primary pressures: coercive, normative, and mimetic. Coercive pressures stem from formal laws and regulations, normative pressures arise from professional standards and societal expectations, and mimetic pressures result from uncertainty. This theory is relevant to the study as it explains how these external pressures influence SMEs' access to tax information, highlighting the role of regulations, social norms, and cognitive factors imposed by the Tanzanian Revenue Authority in shaping SMEs' compliance behavior and information utilization.

2.2 Empirical Review

2.2.1 Access to tax information among Small and Medium Enterprises

Access to tax information among Small and Medium Enterprises reflects the degree to which SMEs are able to engage with various tax-related services or platforms, including online systems, physical offices, mass media, and community outreach initiatives (Suwailim et al., 2023). It also encompasses the clarity and completeness of the information obtained, ensuring that it adequately supports SMEs in understanding their tax obligations. Smith (2022) further defines this access as the overall availability and usability of information, shaped by platform user-friendliness, the responsiveness of tax authorities, and the timeliness of information delivery. Effective access to tax information is essential for SMEs to meet tax requirements, strengthen transparency, and support long-term business stability.

Existing research in different regions highlights persistent challenges. In sub-Saharan Africa, studies by Mbwapo et al. (2026) and Msangi (2025) report limited access and weak dissemination strategies by tax authorities. Similarly, Nigerian findings by Okunola and Alabi (2023) point to low awareness and inadequate outreach as major obstacles. Evidence from Asia, including work by Teng et al. (2022) underscores the importance of digital tools and financial literacy, though many SMEs remain disadvantaged by digital gaps. In Europe, research by Seelkopf et al. (2021) shows that despite stronger institutional frameworks, complex tax systems continue to hinder SMEs' access to essential information.

2.2.2 Factors influencing access to tax information among Small and Medium Enterprises

Various studies worldwide have been carried out to assess the factors influencing access to tax information among Small and Medium Enterprises (SMEs). The following section discusses these factors in detail.

Digital Literacy: Digital literacy is widely recognized as a key factor shaping SMEs' access to tax information. Evidence shows substantial variation in how effectively SMEs obtain and use tax-related information based on their digital competence. Enterprises with stronger digital skills are better positioned to navigate tax systems, use e-filing platforms, and keep up with policy changes. Teng et al. (2022) notes that digitally capable SMEs engage more effectively with tax platforms and government e-services. Benedicta et al. (2025) similarly observes that such firms are more likely to adopt mobile applications, online databases, and automated accounting tools. Findings by Ibrahim and Aduah (2025), Tau et al. (2024), and Ede (2023) further confirm that higher digital proficiency enhances SMEs' ability to access, interpret, and apply tax information for improved compliance and transparency.

Financial Literacy: Studies indicate that financial literacy is a critical determinant influencing tax compliance among SMEs. Financially literate business owners are generally more capable of understanding tax regulations, managing financial records, and fulfilling tax obligations effectively. Research suggests that SMEs with higher levels of financial literacy demonstrate greater awareness of tax systems and exhibit more consistent compliance behavior (Smith, 2022). In the Tanzanian context, researchers such as Mushi (2024) and Kwingwa et al. (2023) argue that limited financial literacy among SME owners restricts their ability to access and interpret tax information. This aligns with findings from other developing countries, where studies like those by Alabede et al. (2022) in Nigeria and Mohammed and Bunyaminu (2021) in Ghana show that financially literate SME operators are more likely to seek, understand, and apply tax information. In contrast, poor financial literacy often results in misconceptions about tax obligations and increased non-compliance. Moreover, Okunola and Alabi (2023) emphasize that financial literacy enhances confidence in access to tax information and dealing with tax matters.

Demographic and Socioeconomic Characteristics: Demographic and socioeconomic characteristics such as age, education level, gender, and business experience significantly influence SMEs' access to tax information. Younger and more educated entrepreneurs generally have better access because they are more capable of using digital platforms and interpreting complex tax regulations (Ollerenshaw et al., 2021). Education also strengthens cognitive abilities and information-seeking behaviors, enabling individuals to understand regulatory requirements more effectively. (Seelkopf et al., 2021) further note that experienced entrepreneurs tend to possess stronger familiarity with tax procedures. In the Sub-Saharan context, studies by Mchukwa and Mbwapo (2024) and Mbwapo et al. (2026) show that female-owned SMEs often encounter greater challenges due to limited exposure to formal training. However, some scholars argue that gender is not an isolated barrier but interacts with factors such as education and business informality.

Tax System Complexity: Tax system complexity significantly affects SMEs' ability to access and utilize tax information. Complex structures with multiple tax layers, exemptions, and varied compliance requirements create major informational challenges. (Rupeika-Apoga et al., 2022) note that such complexity often compels SMEs to seek expert assistance, widening gaps for those without professional support. (Okunogbe & Santoro, 2023b) emphasize that in low-income economies, unclear regulations and weak communication exacerbate difficulties. In Tanzania, (Mbwapo et al. 2026) and (Mwaweza, 2025) show that inconsistent and ambiguous tax requirements hinder interpretation, while (Mwesiga & Twamzehirwa, 2024) highlight the combined effects of complex systems and institutional weaknesses on SMEs' timely access to tax information.

Institutional Support: Effective institutional support plays a crucial role in enhancing SMEs' access to tax information. Access to online resources, professional guidance, and proactive engagement by revenue authorities

improves compliance and interaction with tax systems (Judith *et al.*, 2022; Mohammed & Bunyaminu, 2021; Moore *et al.*, 2020). (Mutalemwa, 2025) highlights that SMEs receiving consistent guidance from officials utilize tax information more effectively. In East Africa, (Magasha *et al.*, 2025) note that the approachability and transparency of tax authorities influence SMEs' willingness to access information. Conversely, weak support, limited staff, and inconsistent messaging often hinder access (Mwaweza, 2025).

Effectiveness of Information Dissemination Strategies: The effectiveness of tax information dissemination strategies greatly influences SMEs' access to relevant information. SMEs' ability to receive, comprehend, and apply tax guidance depends on how authorities communicate it. In China, multi-channel approaches including websites, social media, printed materials, and seminars enhance engagement and accessibility (Ouyang, Liu & Li, 2023). Timely, clear, and structured communication improves understanding and compliance (Mlowoka & Amos, 2025; Nkundabanyanga *et al.*, 2019). Conversely, inconsistent or poorly targeted dissemination often results in misinformation, limiting SMEs' effective access to tax information (Widjaja, 2024).

Despite extensive research on determinants of tax information access among SMEs in Tanzania, critical gaps remain. Studies by (Mushi, 2024) and (Maseko & Sawe, 2022) identify digital literacy and technological access as key factors, yet little empirical work examines their interaction with TRA's digital tax systems in urban commercial areas. Similarly, research by (Vincent, 2021) and (Kwingwa *et al.*, 2023) highlights education and financial literacy but provides limited evidence on their influence over the use of TRA platforms, mobile applications, or taxpayer education programs. This study addresses these gaps by investigating determinants affecting SMEs' access in the Kariakoo Tax Region.

III. METHODOLOGY

3.1 Study Area

The study was conducted in the Kariakoo Tax Region of Dar es Salaam, Tanzania, a major commercial hub with a high concentration of SMEs engaged in diverse economic activities. Kariakoo was purposively selected for its prominence in SME operations, making it strategic for examining tax-related issues (TRA, 2022). A descriptive research design was employed, integrating both quantitative and qualitative approaches to investigate determinants influencing SMEs' access to tax information (Tang, 2025). This design facilitated efficient data collection from a large SME population and allowed statistical generalization. The target population included registered SMEs, covering retailers and wholesalers, with a sample of 156 determined using Yamane's formula (1967).

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = sample size

N = population size (N=255)

e = margin of error (commonly 0.05 for 95% confidence level)

Therefore:

$$n = \frac{255}{1 + 255(0.05)^2} = \frac{255}{1 + 0.6375} = \frac{255}{1.6375} = 156$$

A stratified random sampling technique was used to account for differences among SMEs by size and sector. The population was divided into strata, such as retail and wholesale, and respondents were randomly selected within each stratum to ensure representative coverage. Primary data were collected through structured questionnaires and semi-structured interviews. A self-administered questionnaire was distributed to 156 SMEs to systematically gather standardized data efficiently and cost-effectively. Additionally, qualitative insights were obtained from 15 key informants through interviews.

3.2 Measurement and Control

3.2.1 Dependent Variable

Access to tax information: This was measured extent of accessing tax information from different sources using five Likert scale 1= Never, 2=Rarely, 3=Sometimes, 4= Often, 5= Always. Access to information Index was computed by summing the responses, where a higher score indicates higher access to information. The lowest possible value was obtained by multiplying 1 and 7 items to get 7 while the mid value was obtained by multiplying 3 and 7 items to obtain 21 while the highest value was obtained by multiplying 5 and 7 to obtain 35. Therefore, the total score of 7 to 20 was categories as low access, 21 moderate, while 22 to 35 high access.

3.2.2 Independent Variable

Control variables were measured as follow; Age of the SMEs was measured as respondent's age and coded as 1= 16-25, 2= 26-35, 3= 36-45, 4= 46-55, 5= 56 and above). Sex was measured as being male or female (coded as 1=Male, 0=Female). Education level was measured in terms of highest education level attained by the respondents (Coded as: 1=No formal education, 2=Primary, 3=Secondary, 4=Diploma, 5=Bachelor's Degree), Type of Business was measured by respondents indicating their type of business coded as (1=Retail, 0 = Wholesale). Business Experience was measured in number of years' respondent has been doing business (codes as 1= 1-5, 2= 6-10, 3= 11-15, 4= 16-20, 5= 21 and above). Financial literacy was measured on budget creation, business forecasting, budget review, saving for business emergency and keeping track of business income by using five Likert scale and coded as (1= Never, 2=Rarely, 3=Sometimes, 4= Often, 5= Always). The Financial Literacy index was calculated by summing the items, where a higher index score represents higher financial management.

Regulatory and legal framework support was measured on provision of tax information through official channels, locate and access to tax information, transparency in tax information, simplicity of tax law and procedures, less bureaucratic tax compliance (codes as 1= Strongly disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree). Regulatory and legal framework index was calculated by summing the items, where a higher index score represents higher legal framework support.

Technological and Infrastructural support was measured on access to internet connectivity, access to hardware, access to software and access to technical support and training and coded as (1= Strongly disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree). Technological and Infrastructural Index was calculated by summing the items, where a higher index score represents higher technological support. Language and Communication was measured on simplicity of language used in tax materials, assistance to get explanation and clarification from tax authorities by respondent rating, and coded as (1= Strongly disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree). Language and Communication Index was calculated by summing the items, where a higher index score represents higher communication efficiency. Support Services and Advisory was measured on access to advisory services, response to inquiries timing, support reliability and range of assistance, and coded as (1= Strongly disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree). Support Services and Advisory index was calculated by summing the items, where a higher index score represents higher advisory support services.

3.3 Data Analysis

The quantitative data was coded on the Statistical Package for Social Sciences (SPSS). Social demographic data and independent variables such as financial literacy, regulatory and legal framework, technological and infrastructural, language and communication and support services and advisory were analyzed using descriptive statistics, including frequencies and percentages. The lowest possible value was obtained by multiplying 1 and 9 items to get 9 while the mid value will be obtained by multiplying 3 and 9 items to obtain 27 while the highest value will be obtained by multiplying 5 and 9 to obtain 45. Therefore, the total score of 9 to 26 will be categories as low access, 27 mediums, while 28 to 45 high access. Determinant of access to tax information was analyzed using multiple linear regression analysis using the following model:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9$$

Where:

Y represents access to tax information index.

β_0 = Interception

$\beta_1 \dots \beta_9$ = Regression coefficients

X_1 = Age

X_2 = Sex

X_3 = Type of business

X_4 = Business experience

X_5 = Financial literacy index score

X_6 = Access to regulatory and legal framework support index score

X_7 = Access to Technological and Infrastructural support index score

X_8 = Language and Communication index score

X_9 = Support Services and Advisory index score

Prior to conducting the multiple linear regression analysis, key assumptions were tested to ensure the validity and robustness of the model. Multicollinearity was assessed using the Variance Inflation Factor (VIF) and Tolerance values. While, Autocorrelation was examined through the Durbin-Watson statistic. The validation of the research instruments was conducted in a two-phase process. Initially, the study adopted previously validated items from existing literature, which were subsequently adapted to align with the specific context and objectives of the current research. In the second phase, construct validity was evaluated using Principal Component Analysis with Varimax rotation. Factor

loadings were suppressed at 0.40 to ensure that only items with meaningful contributions to each factor were retained, thereby enhancing the validity of the measurement constructs.

The survey consisted of nine subsections. A reliability test was performed and the value for Cronbach's Alpha for the subsections was as follows; Financial literacy was $\alpha = .87$. Digital literacy was $\alpha = .85$. Regulatory and legal framework was $\alpha = .74$. Technology and infrastructure were $\alpha = .72$. Language and communication were $\alpha = .89$ and Support and advisory services was $\alpha = .82$. The Kaiser-Meyer-Olkin score 0.730 which is significant, this means that data were appropriate to perform exploratory factor analysis. Furthermore, Bartlett's test of sphericity (1159.00, $df=120$ and $p=0.001$) means that correlation is not the same for all factors (Field, 2014).

3.4 Validity and Reliability Analysis

A pilot survey was conducted with a sample of 20 respondents, comprising both retailers and wholesalers. The questionnaire included nine subsections, and the reliability analysis was carried out using SPSS Version 23. The Cronbach's alpha of the instrument was found to be 0.89. These results demonstrate that the research instrument possesses acceptable reliability, making it suitable for data collection purposes. According to Tang (2025), a Cronbach's alpha value of 0.80 or higher is considered indicative of good internal consistency.

IV. FINDINGS & DISCUSSION

4.1 Social Demographic Characteristics of the Respondents

This part presents the social demographic characteristics of the respondents. Information such as age, sex, education levels, business types and business experience in term in years were analyzed. The results show that the majority of respondents were male, accounting for 83 individuals (53.2%), while female respondents were (73, 46.8%) (Table 1). The predominance of male participants suggests a higher level of male involvement in business activities compared to females. One female respondent stated:

"As a woman, it's not always easy to balance family responsibilities and running a business. Sometimes I miss important training or meetings about taxes because I have to take care of things at" (October 10, 2025).

This implies that men usually have more freedom to focus on business full time, and that gives them an advantage. This finding is similar to study by Mlaki (2020), who reported that male entrepreneurs are more prevalent in Tanzanian business environments. The study revealed that more than half (64.1%) of respondent have age ranged between 26 to 35 years. This indicating that small and medium enterprises (SMEs) in the region are largely dominated by young entrepreneurs. One respondent emphasized this by stating:

"I started my business after finishing formal education because jobs were hard to find. As a young person, I use social media and online platforms to learn about business issues." (October 10, 2025).

This observation is consistent with the findings of Vincent (2021), who noted that youth form a significant proportion of SME operators in Tanzania, attributing this to their high energy levels, adaptability, and ambition to improve their livelihoods. In terms of educational attainment, the majority of respondents had attained primary education (43.6%), followed by those with secondary education (30.8%). This implies that individuals with basic education are more engaged in SME activities, possibly due to their ability to acquire fundamental business skills and manage operations effectively. One respondent reflected on this by stating:

"I didn't go far in school, but I learned how to keep records and follow up on business matters through experience and help from other business owners." (October 10, 2025).

These results are similar to the study by Mpofu (2025), which found that most Tanzanian SME owners have low to moderate levels of formal education, yet demonstrate entrepreneurial resilience. Furthermore, the results reveal that majority (86.50%) of the respondents were retail businesses owners. This imply that SMEs in the study area is dominant by the retail business type. This imbalance indicates that retail trade is the most accessible and preferred form of business among small-scale entrepreneurs, probably of low capital needed for retail business. One respondent shared:

"I chose to open a small shop because it didn't need much capital. I started with just a few items and grew slowly." (October 10, 2025).

This trend is consistent with findings by Mwenda and Mwakolo (2024), who reported a similar dominance of retail enterprises in urban and semi-urban areas of Tanzania. Regarding business experience, the largest group of respondents (97.62.2%) reported having 1 to 5 years of experience. The predominance of entrepreneurs with fewer years in business suggests that many SMEs are relatively young and may still be in their growth or survival stages. One respondent stated:

"I started my business just three years ago, and at first, I didn't even know where to find the right tax office or how to register properly." (October 10, 2025).

These findings are contrary to those of Lackson and Muba (2021), who found that many Tanzanian SMEs operate for less than five years due to challenges such as limited access to capital, market competition, and regulatory constraints.

Table 1

Social Demographic Characteristics of the Respondents

Demographic information	Categories	N	%
Age	16-25	47	30.10
	26-35	53	34.00
	36-45	31	19.90
	46-55	21	13.50
	55 and above	4	2.60
Sex	Male	83	53.20
	Female	73	46.80
Education Level	No Formal Education	8	5.10
	Primary	68	43.60
	Secondary	48	30.80
	Diploma	22	14.10
	Degree	10	6.40
Business types	Retail	135	86.50
	Wholesale	21	13.50
Business Experience	Years		
	1-5	97	62.20
	6-10	32	20.50
	11-15	8	5.10
	16-20	12	7.70
	20 and above	7	4.50

4.2 Determinants of Tax Information Access

This part presents the determinants of access to information. Determinants such as financial literacy, access to regulatory and legal framework support, technological and infrastructural access, language and communication, and access to support services and advisory were analyzed using frequencies and percentages. *Financial Literacy*: The findings reveal that about half (50.0%) of the respondents indicated a medium level of financial literacy, while 30.1% exhibited a high level. These results indicate that the majority of SMEs in Kariakoo possess at least a basic to adequate knowledge of financial principles, such as budgeting, record-keeping, and taxation. These results may be attributed to increasing efforts by TRA to promote financial literacy among SMEs. One respondent shared his experience by stating:

“I didn’t know much about taxes when I started, but after attending a seminar organized by TRA, I learned how to keep records and understand what taxes I need to pay. Now I can budget better and avoid problems with the tax office.” (October 10, 2025).

This result is similar to the findings of (Vincent, 2021) who found that TRA provides training and outreach programs targeting entrepreneurs. However, this is contrary to the study by (Tau *et al.*, 2024) who found that majority of SMES have medium financial literacy.

Table 2

Financial Literacy Levels among SMEs n=156

Level	n	%
Low	31	19.9
Medium	78	50.0
High	47	30.1
Total	156	100

4.3 Access to Regulatory and Legal Framework Support

The results indicate that the majority of SMEs (53.8%) reported a medium level of access to regulatory and legal framework support. This implies that several entrepreneurs were engaged with legal and regulatory institutions, such as tax offices and business registration authorities. One of the respondents reflected on her experience by asserting:

“I have visited the TRA office several times to ask about tax requirements and business licenses. The officers were helpful, but sometimes the process is slow, and you need to make follow up many times.” (October 10, 2025).

These findings are similar to the findings of Mwenda and Mwakolo (2024), who reported that SMEs in Tanzania often experience moderate access to legal and regulatory support, largely due to limited institutional coordination and inadequate dissemination of relevant information.

Table 3

Access to Regulatory and Legal Framework Support among SMEs

Level	N	%
Low	34	21.8
Medium	84	53.8
High	38	24.4
Total	156	100

4.3 Technological and Infrastructural Access

The results indicate that 51.9% of SMEs reported a medium level of access to technological and infrastructural support. This implies that over half of the enterprises have partial access to essential tools and services such as internet connectivity, digital devices, and supporting infrastructure needed to access tax-related information and services. One respondent affirms:

“I use my smartphone to check information on taxes, but the internet here is not always reliable. Sometimes I have to go to a stationary to print forms or check the TRA website.” (October 10, 2025).

These findings are similar to those of Mushi (2024), who reported that digital technologies are becoming more available in urban Tanzania, and many SMEs have access or fully utilize them. Contrary to the study by Mshauri (2021), which noted very low levels of technological access among SMEs, the current findings show modest improvement.

Table 4

Technological and Infrastructural Access

Level	N	%
Low	31	19.9
Moderate	81	51.9
High	44	28.2
Total	156	100

4.4 Language and Communication

The findings reveal that a majority of SMEs (51.9%) reported a high level of satisfaction or effectiveness with the language and communication used in disseminating tax information. This indicates that the communication methods and language used are accessible, understandable, and suitable for a significant portion of SME operators. A respondent shared his perspective by stating:

“When TRA officers come for training or awareness sessions, they explain things clearly in Swahili, and they give us examples that relate to our businesses. That helps me understand what I’m supposed to do and what taxes I need to pay.” (October 10, 2025).

These results are similar to the study by Mwesiga and Twamzehirwa (2024) who found that the use of Kiswahili in tax communication significantly improved comprehension among small business operators in Tanzania.

Table 5

Language and Communication

Level	N	%
Low	19	10.3
Moderate	59	37.8
High	81	51.9
Total	156	100

4.5 Access to Support Services and Advisory

The findings show that 55.1% of SMEs reported moderate access to support services and advisory assistance, indicating that over half of the businesses receive partial or full guidance from tax professionals. This reflects an improvement compared to earlier studies by Simiyu *et al.* (2020), which noted limited access to advisory services. One respondent stated: “I sometimes go to an accountant nearby when I need help with filing taxes or understanding new requirements. He explains things well, but I can’t always afford to pay for his services.” Mushi (2024) and Msangi (2025) support this, highlighting that TRA reforms, including taxpayer education units and regional advisory desks, have enhanced SMEs’ use of advisory services, particularly in urban areas.

Table 6

Access to Support Services and Advisory

Level	N	%
Low	31	19.9
Moderate	86	55.1
High	39	25.0
Total	156	100

4.6 Extent of Access to Tax Information by SMEs

This section presents the extent to which SMEs access various tax information sources. The analysis focused on sources including the TRA website, television and radio, tax officers, fellow traders, social media, newspapers, and billboards. The results are summarized in Table 7.

TRA Website: The TRA website emerged as a highly utilized source, with 43.6% of respondents accessing it often and 28.8% always. This highlights the growing reliance on digital platforms, particularly official websites, as reliable avenues for tax-related information due to the e-tax system. One respondent noted: “I regularly visit the TRA website to check deadlines, download forms, and even file returns. It saves me time because I don’t have to go to the office unless it’s something urgent.” These findings align with TRA (2020), which emphasized the role of online taxpayer services, and Mashauri (2021), who observed that SMEs with internet access frequently use online portals for tax filing and information retrieval.

Television and Radio: Television and radio also serve as notable sources, with 32.1% accessing them often and 30.1% sometimes. Mass media remains an important but inconsistent source, likely due to variable content and passive consumption. A respondent commented: “I usually catch tax updates on the radio while driving, especially during news segments. It helps, but sometimes the information is too general or not explained in detail.” This is consistent with Mchukwa and Mbwambo (2024) and Simiyu *et al.* (2024), who highlighted traditional media’s broad reach yet limited interactivity for explaining complex tax concepts.

Tax Officers: Access to tax officers was relatively low, with 40.4% of SMEs rarely engaging directly. Barriers include bureaucracy, limited outreach, and taxpayer hesitation. One participant stated: “I avoid going to the tax office unless I have no other choice. The queues are long, and sometimes the officers are not very helpful. I prefer using the online system or asking fellow business owners.” This aligns with (Maliganya *et al.*, 2024), who reported that perceptions of inefficiency and lack of transparency discourage SMEs from consulting tax officers.

Fellow Traders: Peer networks were a widely trusted source, with 44.2% frequently relying on fellow traders. Social networks are particularly valuable in informal business environments. A respondent remarked: “Most of the time, I ask my fellow shop owners how they handle tax matters. They’ve been in business longer and usually know what to do or who to talk to.” These findings support (Lackson & Muba, 2021) and (Okunola & Alabi, 2023), who emphasized peer advice as a practical channel where formal sources are weak or inaccessible.

Social Media: Social media platforms are increasingly important, with 31.4% accessing them often and 19.2% always. Platforms such as WhatsApp, Facebook, and Instagram allow rapid, interactive information sharing. One respondent explained: “I follow a few business groups on WhatsApp where people post tax updates, reminders, and sometimes even links to TRA forms. It’s quicker than going through official sites.” Mashauri (2021) and Mushi (2024) similarly found that social media expands SMEs’ access to tax information, particularly in urban areas.

Newspapers: Newspaper usage was lower, with 13.5% never using them and 30.1% rarely. This decline reflects digital migration and limited access among small businesses. A respondent commented: “I used to check the newspaper for tax announcements, but now I get updates on my phone. It’s faster and I don’t have to buy a paper every day.” Findings are consistent with Mwalukasa (2022) and Okello-Obura (2020), showing the shift from print to digital sources.

Billboards: Billboards recorded moderate engagement, with 35.3% accessing them sometimes and 34.6% often. While they do not provide detailed information, they effectively raise awareness in high-traffic areas. One respondent noted: “I usually notice TRA messages on billboards when I’m on the way to work. They remind me of deadlines or new rules, even if they don’t explain everything.” This aligns with Mushi (2024) and Mashauri (2021), highlighting billboards’ role in improving visibility and prompting SMEs to seek further information.

Table 7*Access to Tax Information Sources*

Information sources	Access to tax information									
	Never		Rarely		Sometimes		Often		Always	
	N	%	N	%	N	%	N	%	n	%
TRA website	3	1.9	16	10.3	24	15.4	68	43.6	45	28.8
Television and Radio	6	3.8	39	25.0	47	30.1	50	32.1	14	9.0
Tax Officers	11	7.1	63	40.4	38	24.4	30	19.2	14	9.0
My fellow traders	14	9.0	30	19.2	28	17.9	69	44.2	15	9.6
Social media	5	3.2	33	21.2	39	25.0	49	31.4	30	19.2
Newspaper	21	13.5	47	30.1	31	19.9	47	30.1	10	6.4
Billboard	4	2.6	30	19.2	55	35.3	54	34.6	13	8.3

4.7 Factors influencing the access to tax information

Multiple linear regression analysis was conducted to examine the relationship between access to tax information (dependent variable) and independent variables, including business experience, financial literacy, regulatory and legal framework, technological and infrastructural access, language and communication, and support services and advisory. The analysis utilized data from 156 respondents. The results showed that the variance inflation factor (VIF) ranged from 1.21 to 3.27, which is below the threshold of 10, indicating no multicollinearity issues, as recommended by Hair *et al.* (2019). Statistical data are summarized in Table 8. The overall regression model was statistically significant ($p < 0.001$), indicating that the set of predictors reliably explained a portion of the variance in access to tax information. The model yielded an R^2 of 0.327, suggesting that approximately 32.7% of the variance in access to tax information can be explained by the independent variables included.

The beta coefficient for business experience was 0.453 and statistically significant ($p < 0.001$), demonstrating that business experience positively influences SMEs' access to tax information. Entrepreneurs with more years in business tend to have greater exposure to information sources and better access over time. A respondent noted: "I have been in business for over 10 years, and with time, I've learned where to get tax information. I now know the right people to ask and the offices to visit when I need clarity." This aligns with findings by Magasha *et al.* (2025) and Msuya and Ndunguru (2023), who observed that experienced entrepreneurs proactively seek tax information.

Financial literacy showed a beta coefficient of 0.184, statistically significant ($p < 0.026$), indicating that entrepreneurs with stronger financial skills are more likely to understand, seek, and utilize tax information. One respondent said: "Before I learned how to manage my business finances, tax matters were very confusing. But after I attended a financial literacy workshop, I started keeping proper records, which helped me understand my tax responsibilities and access the right information." These findings support Mchukwa and Mbwanbo (2024) and Kweka (2022), demonstrating that financial competence enhances SMEs' engagement with tax systems.

Digital literacy had a beta coefficient of 0.65 ($p < 0.05$), indicating a strong positive influence on access to tax information. Respondents with higher digital skills can navigate online tax platforms effectively. A participant stated: "I used to avoid working with tax issues because the forms and systems were too confusing. However, after attending training organized by the local chamber of commerce, I now use my mobile phone to access tax information very easily." Ibrahim and Aduah (2025) and Ede (2023) similarly observed that digital literacy significantly improves access to tax information.

The tax regulatory and legal framework yielded a beta coefficient of 0.122 ($p < 0.034$), indicating that clear and supportive regulations enhance SMEs' ability to access tax information. A respondent explained: "Previously, I was afraid of anything related to taxes because I didn't understand the rules. But now, after the new guidelines were explained by officials during our association meeting, I feel more confident and know where to go for information." This aligns with Omary and Pastory (2022) and Mbwanbo *et al.* (2026), who highlighted the importance of clear and predictable regulatory environments.

Technological and infrastructural access had a beta coefficient of 0.175 ($p < 0.03$), demonstrating that reliable ICT infrastructure, such as internet connectivity and mobile platforms, positively affects access to tax information. One respondent noted: "I usually use my smartphone to check tax deadlines and updates from the TRA website. Without internet access at my shop, I would have to go all the way to the TRA office for help." Findings are consistent with Mashauri (2021) and (Teng *et al.*, 2022), who emphasized that ICT infrastructure and mobile technology improve SMEs' access, especially in urban and peri-urban areas.

Language and communication showed a beta coefficient of 0.240 ($p < 0.004$), indicating that clear, accessible, and linguistically appropriate communication enhances access to tax information. A respondent explained: "Before, when the tax messages were mostly in English, I used to ignore them because I don't speak English. But now that they are in Kiswahili and simpler, I understand what is required and where to go for help." This aligns with Mwesiga and

Twamzehirwa (2024) and Vincent (2021), highlighting the importance of using widely understood languages to improve comprehension and engagement.

Finally, support services and advisory support had a beta coefficient of 0.275 ($p < 0.002$), showing that guidance from tax consultants, advisory bodies, or help centers significantly improves access to tax information. One respondent stated: “Whenever I have a tax issue, I go to the TRA information desk in Kariakoo. The officers there explain everything clearly and help me fill the forms. Without their support, I wouldn’t know where to begin.” These results are consistent with (Kwingwa et al., 2023) and Rupeika-Apoga (2022), demonstrating that advisory support fosters compliance and facilitates access to relevant tax information.

Table 8

Regression Results of Factors Influencing the Access to Tax Information

Predictor	Estimate	SE	T	P	Stand. Estimate	Collinearity Statistics	
						VIF	Tolerance
Intercept	3.0587	0.5361	5.705	.001			
Age	0.17447	0.1082	1.61231	0.109	0.19578	3.19	0.314
Gender	8.73E-04	0.1369	0.00637	0.995	4.44E-04	1.05	0.953
Education Level	0.05726	0.0689	0.83123	0.407	0.05741	1.03	0.97
Business types	0.00339	0.2116	0.01603	0.987	0.0012	1.22	0.82
Business Experience	0.45352	0.1055	4.29817	.001	0.52854	3.27	0.306
Financial literacy	0.18482	0.082	2.25346	0.026	0.1686	1.21	0.826
Digital literacy	0.13402	0.0821	2.13145	0.005	0.1656	1.22	0.726
Regulatory and legal framework	0.12291	0.0574	2.13973	0.034	0.16218	1.24	0.805
Technological and infrastructural access	0.175	0.0801	2.18562	0.03	0.17561	1.4	0.716
Language and communication	0.2404	0.0818	2.93759	0.004	0.23851	1.43	0.702
Support services and advisory	0.27548	0.0871	3.16321	0.002	0.2534	1.39	0.721

Multiple R=.528, R Square=.327, Durbin-Watson=2.1 $p=0.001$.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study investigated the determinants influencing access to tax information among SMEs in the Kariakoo Tax Region and assessed the extent and sources of such access. The findings indicate that access to tax information among SMEs is moderate, suggesting that while information channels exist, they are not fully effective in ensuring comprehensive awareness and understanding among business operators. Social media platforms, fellow business networks, and the TRA website emerged as the most commonly used sources of tax information, highlighting the growing role of digital and peer-based communication channels in tax knowledge dissemination. The study further established that business experience, financial literacy, technological infrastructure, and language and communication significantly influence SMEs’ access to tax information. Business experience was the strongest determinant, indicating that more experienced entrepreneurs are better positioned to seek and interpret tax-related information.

5.2 Recommendations

To enhance access, the study recommends several interventions. The Tanzania Revenue Authority should strengthen and simplify its website and digital platforms to make tax information more user-friendly, interactive, and accessible to SMEs with varying levels of digital literacy. Given the high usage of social media and peer networks, Tanzania Revenue Authority and other stakeholders should actively disseminate tax information through social media campaigns, business associations, and trader networks to reach a broader SME audience. Government agencies, business associations, and financial institutions should implement targeted financial and tax literacy training programs for SMEs to enhance their ability to understand tax obligations and available information resources. Finally, tax information should be communicated in simple, clear, and locally understandable language such as Kiswahili to reduce comprehension barriers and improve compliance.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Corporate governance, enterprise risk management, and corporate failure: Evidence from financial institutions in Zambia

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ABSTRACT

This study sought to examine the effect of financial performance, corporate governance quality, and enterprise risk management on corporate failure. The sample size of six was drawn from the financial institutions listed on the Lusaka Stock Exchange in Zambia. The study adopted a mixed-method approach in analyzing data for the period 2020 to 2024. The quantitative analysis focused on financial performance using the Capital, Assets, Management, Earnings, Liquidity, and Sensitivity to Risk (CAMELS) approach and regression analysis. On the qualitative side, the study analyzed corporate governance quality and enterprise risk management (ERM) maturity levels based on the firm disclosures for the same period. The findings of the study indicate that firms experience financial distress, evidenced by low levels of capitalization, decline in earnings, and liquidity challenges. Additionally, there is evidence that poor corporate governance structures and ERM systems are not sufficiently effective in mitigating risks and enhancing financial stability, which exacerbates the financial distress faced by the firms. Consequently, these challenges worsen the financially distressed situation that the firms are operating under. Using panel data (2020–2024) from six firms registered on the Lusaka Securities Exchange, this study estimates three regression models predicting financial distress (Z-score), performance (ROA/ROE), and company value (Tobin's Q). The distress model explains 66% of the variation in stability ($R^2 = 0.66$), indicating that board independence, capital strength, liquidity, and regulatory compliance lower failure risk. Non-performing loans significantly increase vulnerability ($\beta = -0.52$, $p < 0.01$). Profitability models ($R^2 = 0.63$ and 0.61) show that good governance and appropriate capital/liquidity lead to higher returns, but inefficiency and low asset quality hinder success. The company value model ($R^2 = 0.68$) indicates that profitability, governance quality, capital adequacy, and compliance increase market valuation, whereas asset deterioration decreases it. Overall, stronger governance, effective risk management, and regulatory discipline are linked to greater stability, better performance, and increased market value. The regression analysis above indicates that the relationship between ERM and governance quality is both negative and statistically significant. The implication is that good corporate governance practices and ERM are effective in reducing the probability of corporate failure. The delayed regulatory intervention can lead to corporate failures that are preventable. Investrust Bank Plc is an example of the effects of regulatory delays. Therefore, financial performance, corporate governance practices, and ERM have an effect on the success of firms. The study recommends that policymakers in the financial services sector should ensure good corporate governance practices; ERM and financial performance are frequently monitored to reduce the likelihood of business failure.

Keywords: Corporate Governance, CAMELS, Corporate Failure, Enterprise Risk Management, Emerging Market, Financial Service Institutions, Zambia

I. INTRODUCTION

Considering the role that is played by the financial services sector, such as savings mobilisation, provision of credit facilities, transfer of funds, and financial risk management, it is vital that it remains stable. Without financial resilience, the economy remains vulnerable to erosion of GDP. Jensen & Meckling (1976) and Claessens & Yurtoglu, (2013) noted that the sector has experienced several challenges, such as banking crises and corporate failures of financial institutions across the developed and emerging economies. Critically, these constraints grow especially in developing economies such as Zambia. Studies have indicated that corporate failures is function of many factors such as financial distress, poor corporate governance practices and enterprise risk management which fails to detect and mitigate the likelihood of business failures (Parker, Peters, & Turetsky, 2002; Piesse et al., 2013; Gennaro & Nietlispach, 2021).

Therefore, this study focuses on financial performance, corporate governance and ERM as indicators of business failure. Financial service institutions are essential to modern economies because they mobilise deposits, allocate capital, facilitate payment systems, and manage financial risks (Bank of Zambia, 2024; Laeven & Levine, 2009). As such, this

position is important to the sector's financial stability and resilience. A financially resilient and stable banking sector boosts investor confidence and promotes foreign direct investment, especially in emerging nations (Laeven & Levine, 2009). However, the global financial system remains essentially unpredictable, with business failures causing significant economic and social costs (Laeven & Levine, 2009). For example, the 2007-2009 global financial crisis, driven by the collapse of subprime mortgage markets and systemic deficiencies in financial regulation, resulted in widespread financial suffering across both advanced and emerging economies (Claessens, Kose, & Terrones, 2010).

Corporate governance provides the institutional framework for boards of directors to oversee management, align organisational goals with stakeholder interests, and restrict excessive risk-taking (Lie, 2023). Corporate governance is especially important in the financial services sector because of the fiduciary character of banking and insurance activities and the systemic consequences of failure (Basel Committee, 2011). The weak board monitoring, low independence, and insufficient risk governance systems have all been linked to excessive risk-taking and institutional instability (Adams and Mehran, 2012; Pathan, 2009). Effective Enterprise Risk Management (ERM) frameworks emphasise risk appetite articulation, board-level risk oversight, and the incorporation of risk considerations into strategic decision-making. Empirical research suggests that ERM adoption, when backed by strong corporate governance procedures, improves financial performance and business value (Hoyt and Liebenberg, 2011). It simply means that firms can fail with boards in place that do not understand that ERM is a tool that they must use to avoid corporate failures.

Africa faces similar corporate governance and Enterprise Risk Management (ERM) vulnerabilities as other parts of the world, particularly in the financial services industry (Talabi, Md Taib & Binti Jalaludin, 2025). However, structural and institutional constraints frequently exacerbate these vulnerabilities. Many African countries suffer supervisory capacity constraints, changing regulatory frameworks, inadequate enforcement mechanisms, and highly concentrated ownership structures, which are frequently typified by family control, state ownership, or dominating shareholders (Kong et al., 2020). These dynamics have a substantial impact on governance quality and risk supervision methods within financial institutions, increasing the risk of institutional fragility and failure (Basel Committee, 2011; Beck et al., 2014).

The empirical research on African banking systems demonstrates that weak board independence, political influence, regulatory forbearance, and inadequate risk governance frameworks all contribute to banking sector instability. In many jurisdictions, risk management frameworks are still compliance-driven rather than strategically incorporated into corporate governance structures, decreasing resilience to macroeconomic shocks (IMF, 2018). Zambia, being a developing country, faces similar systemic and governance concerns to many African financial systems. Over the last decade, the Bank of Zambia has implemented a number of regulatory and supervisory reforms aimed at strengthening prudential oversight, capital adequacy requirements, and corporate governance standards in accordance with international best practices (Bank of Zambia, 2017; Basel Committee, 2011). Despite of these reforms, institutional departures and failures in Zambia's financial industry have persisted, indicating underlying structural and governance deficiencies (Chiumya, 2005).

Investrust Bank Plc, for example, encountered financial hardship and halted operations in 2004 due to capital deficiency, liquidity issues, and governance flaws, despite regulatory intervention (Chiumya, 2005; Bwato, Kamanga & Yohane, 2026). Such institutional failures emphasize the continuing gap between regulatory change and effective governance implementation inside developing-country's financial institutions. Therefore, their recent failure raises questions on policy reforms, the role of the regulator, corporate governance and ERM quality.

1.1 Statement of the Problem

The Zambia financial services sector has enhanced prudential regulation and corporate governance norms in recent years, although financial distress and institutional failure in the financial services industry persist. The conventional monitoring systems prioritize financial performance indicators as major indications of stability. However, recent institutional failures indicate that performance measures alone may not give effective early warning, especially when governance flaws, poor risk management procedures, and delayed supervisory actions overlap.

The fall of Investrust Bank Plc demonstrates the inadequacies of existing preventive systems and highlights the need for more integrated analytical methodologies that take into account both financial performance and the quality of regulatory monitoring.

Empirical research in Zambia has not thoroughly investigated how regulatory supervision influences or moderates the relationship between worsening financial performance and eventual corporate failure. Much of the existing literature examines financial ratios, governance structures, and regulatory frameworks separately, without considering how these factors interact over time. This fragmented approach hampers the ability of regulators, boards, and policymakers to create context-specific early warning systems and intervention methods for emerging market financial ecosystems.

1.2 The Research Gap

Despite extensive research on corporate failure and financial distress prediction, most studies focus on developed economies and rely heavily on financial ratio-based models that do not explicitly incorporate corporate governance and Enterprise Risk Management (ERM) as structural determinants of institutional resilience (Altman, 1968; Beaver, 1966; Laeven & Valencia, 2020). Governance and ERM are usually studied in isolation or as peripheral variables, rather than as interacting mechanisms influencing financial performance and organisational survival (Adams & Mehran, 2012; Hoyt & Liebenberg, 2011). Furthermore, empirical evidence from Sub-Saharan Africa is scarce, fragmented, and frequently descriptive, with insufficient modelling of governance-risk-performance links in emerging capital markets (Talabi, Md Taib & Binti Jalaludin, 2025; Beck et al., 2014).

The study's novel contribution is the development of an integrated empirical model that investigates corporate governance frameworks, ERM implementation, and financial performance as joint predictors of corporate failure in a growing African financial market scenario. By focusing on financial institutions listed on the Lusaka Securities Exchange, the study fills geographic and methodological gaps in current work while also providing context-specific information from Zambia. It advances theoretical debates in corporate governance and risk management by empirically testing whether governance quality and ERM adoption improve financial performance and reduce institutional vulnerability in a regulated financial services environment (Basel Committee, 2011).

1.3 Research Objective

The study set out to look at five (5) objectives and however this article is premised to focus on objective number three (3) of this study which is to examine the interplay between corporate governance, enterprise risk management, financial performance, and firm value in explaining corporate failure among financial service institutions.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Theoretical Foundations of Corporate Failure in Financial Service Institutions

Financial service institutions (FSIs) differ fundamentally from non-financial firms due to their high leverage, opacity of asset quality, maturity transformation function, and systemic interconnectedness. These structural characteristics amplify agency conflicts and increase vulnerability to governance failures (Laeven & Levine, 2009; Berger, Imbierowicz, & Rauch, 2016). Consequently, corporate failure in financial institutions is rarely attributable to financial distress alone; rather, it often emerges from deeper governance and risk management deficiencies.

The intellectual roots of governance-related failure can be traced to classical economic thought. Adam Smith (1776) observed that managers entrusted with “other people’s money” may not exercise the same vigilance as owners. This concern was later formalised by Berle and Means, who documented the separation of ownership and control in modern corporations (Mizruchi, 2004). Building on this foundation, Agency Theory provides a structured explanation of corporate failure by emphasizing conflicts of interest between shareholders, boards, and managers (Jensen & Meckling, 1976). In banking institutions, these agency conflicts may encourage excessive risk-taking, earnings manipulation, and inadequate risk disclosure when monitoring mechanisms are weak (Adams & Mehran, 2012; Berger et al., 2016).

While agency theory focuses primarily on shareholder–manager conflicts, Stakeholder Theory extends the governance framework by recognising the interests of depositors, regulators, employees, and the broader economy (Freeman, 1984). Given the systemic importance of financial institutions, governance mechanisms must safeguard not only shareholders but also public confidence and financial stability.

This study further draws on Enterprise Risk Management (ERM) Theory, which posits that organisations adopting a holistic, enterprise-wide approach to risk identification and mitigation are better positioned to withstand adverse shocks (Togunde, 2024). ERM theory emphasizes risk appetite articulation, integrated risk governance, and strategic alignment. However, ERM effectiveness is contingent upon strong board oversight and accountability structures; without active governance involvement, ERM may become symbolic or compliance-driven rather than substantive (Stulz, 2015).

Systems Theory offers additional insight by conceptualizing financial institutions as interdependent subsystems embedded within broader regulatory and macroeconomic environments (Mele, Pels & Polese, 2010). From this perspective, corporate failure arises from interactions among governance weaknesses, ineffective risk management, and external shocks. This framework is particularly relevant in emerging markets, where regulatory capacity constraints and macroeconomic volatility may intensify firm-level vulnerabilities.

Taken together, these theoretical perspectives suggest that corporate failure is best understood as the outcome of interacting governance, risk management, regulatory, and financial performance dynamics rather than isolated financial distress indicators.



2.2 Empirical Review

2.2.1 Corporate Governance and Institutional Stability

Empirical research consistently identifies corporate governance as a critical determinant of institutional stability. Governance mechanisms such as board independence, board size, audit committees, and disclosure quality play a central role in monitoring managerial behaviour and constraining excessive risk-taking (Adams & Mehran, 2012; Pathan & Faff, 2013).

Strong governance structures enhance transparency and investor confidence, thereby contributing to improved financial performance and firm value (Haj-Salem et al, 2020). Cross-country evidence from developed economies demonstrates a robust and positive association between governance quality and firm performance (Haj-Salem et al, 2020). Similar findings are reported in emerging markets; for example, Ikbali et al., (2020) documents a positive governance–performance relationship in Indonesia confirm comparable outcomes in other developing contexts.

However, governance effectiveness in African financial systems is often constrained by concentrated ownership structures, limited enforcement capacity, and weak regulatory oversight. Although many countries have adopted governance codes aligned with international best practices, implementation quality varies significantly across institutions operating within the same regulatory environment. This divergence partly explains differing stability outcomes among firms subject to identical formal regulations.

2.2.2 Enterprise Risk Management and Financial Performance

The empirical literature generally supports a positive relationship between ERM adoption and financial performance. Firms implementing mature ERM frameworks tend to exhibit higher profitability, improved capital efficiency, and reduced earnings volatility (Hoyt & Liebenberg, 2011; McShane, Nair, & Rustambekov, 2011).

In the banking sector, Ellul and Yerramilli (2013) demonstrate that stronger risk controls are associated with lower tail risk and enhanced resilience during financial crises. Similarly, Stulz (2015) argues that effective risk management enables institutions to undertake value-enhancing risks while avoiding catastrophic losses.

Despite these positive findings, ERM effectiveness is highly dependent on governance quality. Studies indicate that ERM systems yield optimal benefits when boards actively engage in risk oversight and integrate risk considerations into strategic decision-making. Where ERM is implemented merely as a compliance exercise, its influence on managerial behaviour and institutional stability remains limited.

2.2.3 The Role of Regulation and Institutional Oversight

Regulatory oversight plays a crucial moderating role in shaping governance and risk management outcomes. Ellul and Yerramilli (2013) find that corporate governance mechanisms significantly influence firm value, particularly in companies with high liquidity positions. Their findings further indicate that institutional ownership exerts a substantial effect on firm valuation. The study concludes that governance mechanisms must be implemented substantively rather than symbolically to achieve long-term growth and stability.

In the banking sector, regulatory frameworks such as Basel III capital and liquidity requirements strengthen prudential safeguards by reinforcing capital adequacy and supervisory review mechanisms (Basel Committee on Banking Supervision, 2011). However, regulatory effectiveness varies across jurisdictions, particularly in emerging markets where supervisory capacity constraints may weaken enforcement.

2.2.4 Gaps identified in the Literature

Most existing studies examine corporate governance, ERM, financial performance, and regulatory oversight in isolation. Even where these variables are analysed jointly, the evidence is largely drawn from developed economies. Limited empirical research integrates governance, ERM, and CAMELS indicators within a unified failure-prediction framework in emerging African markets.

This study addresses this gap by empirically modelling the interaction effects among corporate governance, enterprise risk management, and CAMELS indicators in explaining corporate failure among financial service institutions listed on the Lusaka Securities Exchange in Zambia. By adopting an integrated modelling approach, the study contributes both conceptually and regionally to the literature on financial institution stability.

2.3 The Conceptual Framework

The figure below presents the visual interaction between the variables corporate governance, enterprise risk management, financial performance, firm value, regulation and corporate failure. The framework shows clearly the interplay which is that no single variable is responsible for institutional failure but a multifaceted interplay between the variables under study.

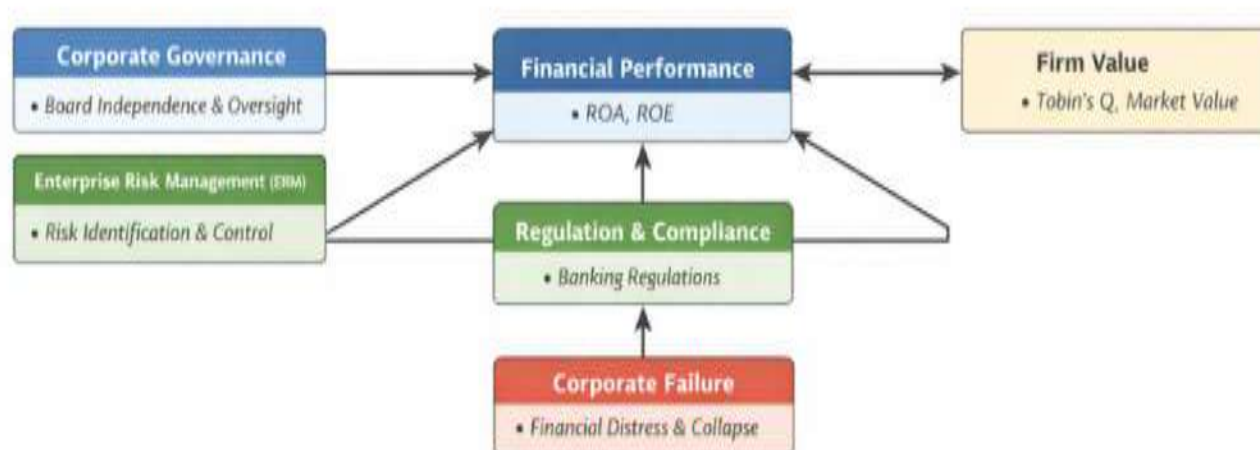


Figure 1
Conceptual Framework

III. METHODOLOGY

3.1 Research Design

This study adopts an explanatory quantitative research design which applied the panel data analysis strategy. The quantitative approach is appropriate because it helps the researcher to discuss the indicators of corporate failure through corporate governance, financial performance and ERM. By determining the relationship amongst these variables will help analyse the impact they have on corporate performance.

3.2 Population and Sampling Techniques

The population of the study constitutes financial companies listed on the Lusaka Stock Exchange. However, since the study focused on financial sector institutions, the research drew its sample population of the six (6) only listed firms for the period 2020 to 2024. The study used a purposive sampling technique to gather data from four (4) Banks, one (1) company listed as financial service and one (1) re-insurance company. The study considered data from 2020 to 2024. The inclusion criteria also considered corporate failures experienced by the Zambia financial sector which is key to explaining issues that lead to their failure.

3.3 Data Sources and Collection Methods

The study used secondary data in form audited financial statements, relevant publications from regulator (Bank of Zambia and Pensions Insurance Authority) and other documents published between 2020 and 2024. This secondary data provided the study with indisputable (objective) facts that are not subjective. This means that the study's findings were based on factual information. Further, to enhance the credibility and contextual interpretation of the quantitative findings, qualitative evidence from regulatory reports and public statements is used descriptively, without forming part of the econometric estimation.

3.4 Operationalisation of the Variables

3.4.1 Corporate Failure

Corporate failure (CF) is operationalised as a binary variable reflecting the occurrence of regulatory intervention, resolution, or institutional collapse. The variable takes a value of one (1) for firm-year observations characterised by regulatory takeover, resolution measures, or failure, and zero (0) otherwise.

3.4.2 Financial Performance, Corporate Governance and Enterprise Risk Management

Financial Performance: These variables were operationalised by measuring capital adequacy ratio, return on equity (ROE), non-performing loan ratio, and return on assets (ROA), and sensitivity to market risk. The study used these ratios to determine profitability, liquidity, solvency and any other risks of corporate failure. *Corporate Governance:* Corporate governance was measured using an index which considered the following features of the board of directors: independence, size, chairperson and chief executive officers' roles, committees and quality and level of disclosures. Each attribute is scored based on compliance with regulatory guidelines and best practice principles, and the composite



index is standardized to facilitate comparison across institutions and time. *Enterprise Risk Management Index (ERMI)*: ERM maturity is measured using a composite ERM index derived from institutional disclosures. This index reflects the depth of ERM implementation rather than mere formal adoption. The variables for this index include the presence of risk statements, risk management committees, the role of ERM in strategic planning, three-lines-of-defence model, reporting frequency on risk and risk appetite

3.4.3 Endogeneity and Mitigation strategy

Endogeneity is a methodological challenge when investigating the relationship between corporate governance, Enterprise Risk Management (ERM), financial performance, and organizational failure. Governance arrangements and firm performance may be set concurrently, resulting in simultaneity bias. While strong governance systems can improve financial performance, high-performing organizations may have more resources and incentives to implement stronger governance and ERM frameworks (Adams & Mehran, 2012; Wintoki, Linck, & Netter, 2012). If not addressed properly, this reciprocal interaction might result in biased and inconsistent parameter estimates.

Endogeneity can result from three main sources: (i) reverse causality, (ii) omitted variable bias, and (iii) unobserved firm heterogeneity. First, reverse causality is possible since profitable institutions may actively increase governance and ERM systems, rather than governance only driving performance. Second, neglected macroeconomic or institutional factors such as regulatory intensity or ownership concentration can have an impact on both governance quality and financial performance. Third, time-invariant business features (such as organizational culture and historical ownership arrangements) may influence both governance and performance. To address these issues, this work applies numerous econometric strategies:

i. *Lagging Independent Variables*: Governance and ERM variables are introduced in a lagged (t-1) relationship to financial performance and business failure metrics (t). This temporal separation mitigates simultaneity bias and increases causal inference by guaranteeing that governance features occur before observed financial results (Wintoki et al., 2012).

ii. *Firm Fixed Effects Estimation*: To account for unobserved, time-invariant firm-specific variability, we use a fixed-effects panel regression model. The model isolates within-firm fluctuations over time by distinguishing consistent factors specific to each institution (Wooldridge, 2010). This approach is especially useful in financial services research, because structural traits can endure over time.

iii. *Time-fixed effects* Year dummies are introduced to account for macroeconomic shocks, regulatory changes, and systemic events that effect all institutions at the same time (for example, regulatory tightening following the financial crisis). This lowers omitted variable bias due to similar time trends. Checks for robustness to verify that the results are stable; further robustness tests are performed using other performance indicators and governance proxies. To account for any variance discrepancies, heteroskedasticity-robust standard errors are used as needed. Collectively, these measures improve the empirical model's internal validity and minimise the possibility that observed correlations between corporate governance, ERM, and financial performance are the result of endogeneity bias rather than actual causal mechanisms.

iv. By integrating temporal ordering and adjusting for unobserved heterogeneity, the analysis enhances its conclusions about the drivers of corporate failure in Zambia's financial services sector.

3.5 Estimation Technique and Diagnostic Considerations

The data was analysed using the logistic regression. This is relevant to the study since it provides the statistical significance of variables that predict corporate failure. Further, it produces consistent and efficient estimates for binary dependent variables and allows for direct interpretation of marginal effects on failure probability.

3.7 Ethical Considerations

Since there was no human interaction in this study, no harm was caused to human beings. As such, the study does not pose any ethical risks related to informed consent. However, even though reliance was placed on secondary data, the study presents and interprets results as they are without bias.

IV. FINDINGS & DISCUSSION

4.1 Effect of Corporate Governance, ERM, Financial Performance, Firm Value, Regulation on Corporate Failure

Empirical analysis shows a meaningful relationship between corporate governance quality, ERM effectiveness, financial performance, and firm value. Financial service Institutions with stronger corporate governance and integrated risk management frameworks tended to exhibit more stable profitability, healthier capital positions, and greater resilience to shocks. Conversely, weak governance and ineffective risk oversight were associated with declining

performance indicators and heightened vulnerability. These findings highlight the interconnected nature of governance, risk management, and financial outcomes.

4.2 Descriptive Statistics and Preliminary Analysis

Table 1 presents the descriptive statistics for all variables included in the empirical analysis. The results indicate substantial heterogeneity in financial performance, corporate governance quality, and ERM maturity across the sampled financial service institutions. Capital adequacy ratios vary widely, reflecting differences in balance sheet strength and risk absorption capacity. While some institutions consistently maintain capital buffers above regulatory thresholds, others exhibit persistent capital shortfalls during the study period.

Table 1

Descriptive Statistics and Correlation Matrix

Study Variable	Mean	Std. Dev.	Min	Max	CF	CGPI	ERMI	CAR	ROA	LIQ
CF	0.17	0.38	0	1	1	-	-	-	-	-
CGPI	0.64	0.12	0.38	0.82	-0.46	1	-	-	-	-
ERMI	0.61	0.15	0.33	0.85	-0.51	0.62	1	-	-	-
CAR	14.8	4.6	-3.1	26.4	-0.59	0.48	0.52	1	-	-
ROA	2.7	3.1	-11.2	8.9	-0.63	0.41	0.46	0.55	1	-
LIQ	39.4	8.2	18.6	61.3	-0.57	0.44	0.47	0.51	0.49	1

The profitability indicators as measured by return on assets and return on equity, show marked dispersion, with several firm-year observations recording negative earnings. Liquidity ratios similarly display significant variation, highlighting differences in funding structures and short-term resilience. These patterns suggest that the listed financial service institutions operate under materially different risk and performance conditions despite being subject to the same regulatory framework.

The corporate governance and ERM indices also exhibit notable variation. Therefore, institutions with higher governance scores tend to demonstrate stronger disclosure practices, greater board independence, and more developed committee structures. Similarly, ERM scores indicate that while some institutions have fully integrated enterprise-wide risk management frameworks, others rely on fragmented or compliance-driven risk practices. The correlation analysis reveals that corporate governance quality and ERM maturity are positively correlated with capital adequacy, profitability, and liquidity, and negatively correlated with corporate failure incidence. The strong positive correlation between the corporate governance index and the ERM index suggests that institutions with robust governance structures are more likely to embed risk management at a strategic level. Importantly, no correlation coefficients exceed conventional thresholds associated with multicollinearity, supporting the stability of the regression models.

4.2 CAMELS Indicators and Corporate Failure

Table 2 shows the baseline logistic regression findings based on CAMELS indicators. Odds ratios are presented with coefficients for easy reading. Capital adequacy is connected with corporate failure, both negatively and statistically significantly. The odds ratios show that institutions with stronger capital buffers have significantly lower failure probabilities, highlighting the prudential necessity of loss-absorbing capital in maintaining institutional confidence. The earnings performance (ROA and ROE) has a considerable negative relationship with failure risk. The marginal effects indicate that consistent profitability significantly reduces the expected probability of failure, emphasizing the importance of internal capital generation and operational sustainability. In contrast, poor earnings performance raises institutional vulnerability.

Liquidity also emerges as an important variable. Lower liquidity ratios enhance the chance of failure, demonstrating that financial instability can cause distress even when solvency indicators appear to be acceptable.

Despite the statistical significance of the CAMELS variables, the baseline model's explanatory power remains weak. This suggests that financial metrics alone cannot adequately predict institutional survival, prompting the addition of governance and risk management variables. Table 2 reports the results of the baseline logistic regression model examining the relationship between CAMELS indicators and corporate failure. The results demonstrate that financial performance variables are significant predictors of failure probability, consistent with regulatory and empirical literature.

Table 2
Logistic Regression Results – CAMELS Model

Study Variable	Coefficient (B)	Std. Error	z-stat	P-value
Capital Adequacy (CAR)	-0.183	0.061	-3.01	0.003***
Asset Quality (NPL)	0.146	0.058	2.52	0.012**
Management Quality	-0.211	0.083	-2.54	0.011**
Earnings (ROA)	-0.297	0.091	-3.26	0.001***
Liquidity	-0.168	0.072	-2.33	0.020**
Constant	2.741	0.912	3.01	0.003****

* p < 0.01, ** p < 0.05

In addition, capital adequacy emerges as a statistically significant determinant of corporate failure. Institutions with lower capital adequacy ratios exhibit a substantially higher likelihood of failure, underscoring the central role of capital buffers in absorbing losses and sustaining confidence. This finding aligns with prudential theory and confirms the relevance of capital regulation in the Zambian financial sector. The earnings performance, captured by return on assets and return on equity, is also negatively and significantly associated with failure probability. Persistent losses weaken internal capital generation, erode investor and depositor confidence, and constrain management's ability to respond to adverse shocks. Liquidity similarly plays a critical role, with lower liquidity ratios significantly increasing the probability of corporate failure. This result highlights the vulnerability of institutions facing funding pressures, particularly in environments characterised by limited access to wholesale funding markets. While CAMELS indicators effectively identify financial distress, the explanatory power of the baseline model remains moderate. This suggests that financial performance alone does not fully explain why some institutions fail while others survive, reinforcing the need to incorporate governance and risk management variables into the analysis.

4.3 Corporate Governance, ERM, and Interaction Effects

Table 3 shows the enlarged model, which includes the Corporate Governance Index (CGI), Enterprise Risk Management Index (ERMI), and their interaction term. Governance and ERM variables significantly improve model fit, as evidenced by increased likelihood ratio statistics and pseudo-R² values, highlighting their incremental explanatory contribution. Corporate governance quality has a negative and statistically significant correlation with corporate failure. Institutions with better board oversight, independence, and disclosure standards are less likely to fail, even after accounting for financial performance.

This lends credence to the claim that governance frameworks reduce excessive risk-taking while increasing resilience. The ERM maturity also has a negative, statistically significant impact. Institutions with established risk appetite frameworks, board-level risk oversight, and integrated risk reporting processes have a reduced failure rate. Importantly, the magnitude of the ERM impact grows when the interaction term is included, implying conditional effectiveness. In addition, Table 3's extended logistic regression results have incorporated corporate governance, ERM, and their interaction term. The inclusion of these variables significantly improves the explanatory power of the model, as indicated by higher likelihood ratio statistics and pseudo-R² values.

Table 3
Corporate Governance, ERM Interaction Regression Results

Study Variable	Coefficient (β)	Std. Error	z-stat	p-value
CAR	-0.129	0.058	-2.22	0.026 **
ROA	-0.231	0.084	-2.75	0.006 ***
CGI	-1.842	0.642	-2.87	0.004 ***
ERMI	-1.476	0.611	-2.41	0.016 **
CGI × ERMI	-2.318	0.892	-2.6	0.009 ***
Constant	3.912	1.238	3.16	0.002 ***

Note: ** p < 0.05, *** p < 0.01

4.3.1 Interpretation of CGI and ERMI Interaction

The interaction term between corporate governance and ERM is negative and statistically significant, giving empirical evidence for the complementarity of governance and risk management systems. The findings show that ERM is most effective at reducing failure risk when entrenched in strong governance systems. In institutions with poor governance, ERM frameworks may exist formally but lack enforcement authority or strategic influence. Risk identification may not result in corrective action due to board independence, managerial dominance, or insufficient

supervision capacity. As a result, the efficiency of ERM appears to be determined by governance quality. The findings also show a potential threshold effect. ERM's protective influence grows significantly as governance quality exceeds a certain threshold. Under this threshold, incremental gains in ERM maturity result in minimal decreases in failure probability. This conclusion shows that governance serves as an enabling framework for ERM, rather than a substitute mechanism.

The corporate governance quality exhibits a negative and statistically significant relationship with corporate failure. Institutions with stronger governance structures are less likely to experience failure, even after controlling for financial performance. This finding supports the argument that effective board oversight, independence, and disclosure mitigate excessive risk-taking and enhance institutional resilience. The enterprise risk management maturity also displays a negative and significant effect on failure probability. Therefore, institutions with integrated ERM frameworks, formal risk appetite statements, and board-level risk oversight are better equipped to anticipate and manage adverse shocks. However, the magnitude of the ERM coefficient increases substantially when the interaction term is included, indicating that ERM effectiveness is conditional on governance quality.

The interaction term between corporate governance and ERM is negative and statistically significant, providing strong empirical support for the interplay hypothesis. This result indicates that ERM is most effective in reducing corporate failure risk when embedded within strong corporate governance structures. In institutions with weak governance, ERM frameworks appear less capable of mitigating financial distress, suggesting that risk management systems without effective board oversight may be largely symbolic. These findings demonstrate that corporate failure is driven not only by financial distress but also by the interaction between governance structures and risk management practices. The results confirm that governance and ERM jointly shape how financial performance translates into institutional survival or failure.

4.4 CAMELS-Based Institutional Assessment

Furthermore, to complement the regression analysis, Table 4 presents CAMELS-based institutional profiles for each sampled institution. The profiling reveals clear differences in financial health and risk exposure across institutions. Zanaco Bank Plc, Absa Bank Zambia Plc, and Standard Chartered Bank Zambia Plc consistently exhibit strong capital adequacy, stable earnings, and adequate liquidity throughout the study period. These institutions also record higher corporate governance and ERM scores, suggesting a reinforcing relationship between financial performance, governance quality, and risk management maturity. In contrast, Investrust Bank Plc displays persistent weaknesses across multiple CAMELS dimensions, particularly capital adequacy and liquidity. These weaknesses are accompanied by low governance and ERM scores, reflecting limited board oversight and fragmented risk management practices. The convergence of financial distress, weak governance, and immature ERM frameworks provides a clear empirical explanation for the institution's eventual failure.

Table 4

CAMELS Scores by Institution

Financial Service Institution	Capital	Asset Quality	Management	Earnings	Liquidity	Sensitivity	Composite Risk
Zanaco Plc	Strong	Strong	Strong	Strong	Stable	Moderate	Low
Absa Plc	Strong	Strong	Strong	Strong	Stable	Moderate	Low
Standard Chartered Plc	Strong	Very Strong	Strong	Very Strong	Stable	Moderate	Low
Madison FS Plc	Adequate	Moderate	Moderate	Weak	Tight	High	Medium
Zambia Reinsurance Plc	Adequate	Strong	Moderate	Moderate	Stable	Low	Medium
Investrust Bank Plc	Weak	Poor	Weak	Negative	Crisis	High	Severe

The failure of Investrust Bank Plc in 2024 further illustrates the role of regulatory timing in corporate failure dynamics. Prolonged financial distress and governance deficiencies were evident well before the institution's collapse, yet corrective intervention occurred at a late stage. This outcome underscores the importance of proactive supervision by the Bank of Zambia and highlights how delayed regulatory action can allow institutional vulnerabilities to escalate into failure.

4.4.1 Case Example: The Investrust Bank Plc

The experience of Investrust Bank Plc serves as a practical example of the interaction effect. Prior to its liquidation, the institution experienced persistent capital deficiency, earnings decline, and liquidity difficulties. While formal risk management systems existed, governance flaws hampered effective oversight and prompt corrective action.

The empirical interaction finding implies that under weak governance settings, ERM frameworks may become purely symbolic. The course of Investrust shows this dynamic: financial instability, paired with weak governance monitoring, undermined risk management systems' ability to avert institutional collapse.

4.5 Robustness and Interpretation of Findings

When all is put together, the empirical results provide robust evidence that corporate failure among listed financial service institutions in Zambia is not solely a function of financial underperformance. While CAMELS indicators remain important early-warning signals, their impact on failure probability is significantly moderated by corporate governance quality and ERM maturity. The interaction effects demonstrate that strong governance enhances the effectiveness of ERM, while weak governance undermines it. This finding explains why institutions with similar financial profiles can experience divergent outcomes and reinforces the need for integrated analytical frameworks that combine financial and non-financial determinants of stability.

4.6 Discussion

4.6.1 Corporate Governance, ERM, and the Dynamics of Corporate Failure

The findings of this study provide strong empirical support for the argument that corporate failure among financial service institutions cannot be explained by financial distress alone. While CAMELS indicators such as capital adequacy, earnings performance, and liquidity significantly predict failure probability, their effects are substantially conditioned by the quality of corporate governance and the maturity of enterprise risk management frameworks. This evidence reinforces the view that corporate failure is a multidimensional phenomenon driven by the interaction of financial and non-financial factors as highlighted by (Purves et al., 2015).

The negative and statistically significant relationship between corporate governance quality and corporate failure confirms the central propositions of agency theory. Effective governance mechanisms—particularly board independence, specialized committees, and transparent disclosure—reduce information asymmetries and constrain managerial opportunism (Akhtaruddin & Haron, 2010). In financial service institutions, where leverage and risk opacity are high, weak governance structures allow excessive risk-taking and delay corrective action, thereby accelerating institutional fragility. The results of this study are consistent with international evidence showing that governance failures are a key precursor to bank distress and collapse (Shtiwi, 2025).

4.6.2 Enterprise Risk Management as a Conditional Risk Mitigator

The empirical results demonstrate that enterprise risk management independently reduces the probability of corporate failure. However, the magnitude and significance of this effect increase markedly when ERM is interacted with corporate governance. This finding is particularly important for understanding why ERM adoption has produced mixed results in prior empirical studies. The evidence suggests that ERM effectiveness is not inherent in the existence of formal risk frameworks, but rather in how these frameworks are governed, monitored, and embedded within organizational decision-making processes (Crawford & Jabbour, 2024).

The institutions with strong governance structures are more likely to integrate ERM into strategic planning, capital allocation, and performance evaluation. In contrast, institutions with weak boards and limited accountability may adopt ERM in a compliance-driven or symbolic manner, reducing its capacity to prevent risk accumulation. This finding supports ERM theory, which emphasizes the role of board-level risk ownership and strategic alignment in translating risk management practices into improved organizational outcomes (Manfreda-Foley, 2025).

4.6.3 Financial Performance, CAMELS Indicators, and Institutional Outcomes

The significance of capital adequacy, earnings stability, and liquidity in the baseline CAMELS model confirms the continued relevance of prudential indicators as early-warning signals of institutional distress. Capital buffers enhance loss-absorbing capacity, stable earnings support internal capital generation, and liquidity ensures short-term survival during periods of market stress. However, the study's results also demonstrate that similar CAMELS profiles can lead to divergent institutional outcomes depending on governance and ERM quality. This finding helps explain why some financial institutions survive prolonged periods of financial stress while others collapse under comparable conditions. Strong governance and integrated ERM frameworks enable institutions to respond proactively to emerging risks, restructure operations, and restore financial stability (Tarullo, 2019). Conversely, weak governance and fragmented risk management amplify the impact of declining financial performance, transforming distress into failure (Musa, 2024).

4.6.4 Regulatory Oversight and the Moderating Role of Supervision

The findings further highlight the critical role of regulatory oversight in shaping corporate failure outcomes. Although regulatory supervision is not explicitly modeled as a separate variable, evidence from the failure of Investrust Bank Plc illustrates how delayed intervention compounds governance and risk management deficiencies. Persistent



capital inadequacy, repeated audit failures, and weak internal controls were evident over several years prior to the institution's collapse, yet decisive supervisory action occurred only at an advanced stage of distress. This outcome supports regulatory theory, which argues that timely intervention is essential for correcting governance failures and preventing the escalation of financial distress into insolvency (Bwato et al., 2026). In emerging markets, supervisory capacity constraints and regulatory forbearance may unintentionally allow institutional weaknesses to persist. The findings therefore underscore the importance of proactive, risk-based supervision by the Bank of Zambia, particularly in enforcing governance and ERM standards among systemically important institutions (Kaluba, 2025).

4.6.5 Implications for African Financial Systems

The results of this study contribute to African empirical literature by providing evidence that corporate failure in emerging financial systems is driven by interaction effects between governance, risk management, and financial performance. This interaction-based perspective extends prior African studies that have focused primarily on financial ratios or isolated governance attributes (Ackah et al., 2024). By demonstrating that ERM effectiveness depends on governance quality, the study offers a more nuanced explanation of institutional resilience and collapse in African financial markets. The findings also carry important practical implications. Regulators and policymakers should move beyond checklist-based compliance assessments toward evaluating how governance and ERM frameworks function in practice (Agarwal, 2025). Similarly, boards of financial institutions should recognize that risk management cannot be delegated entirely to management functions without effective board oversight and accountability mechanisms (Bugalla et al., 2012).

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusion

This study looked at how corporate governance and enterprise risk management (ERM) interact with financial performance to predict corporate failure in financial sector organisations listed on the Lusaka Securities Exchange. The data demonstrate that insufficient capital, declining earnings, and liquidity restrictions all increase the risk of corporate failure. However, institutions with inadequate corporate governance structures and immature ERM frameworks exacerbate these vulnerabilities significantly. Most crucially, the findings show that governance and ERM function as complementing institutional systems. Only when ERM is integrated with solid governance systems can it considerably minimise the likelihood of failure. Where governance quality is low, ERM frameworks tend to be essentially symbolic and ineffective in alleviating financial crisis.

Corporate failure in emerging financial markets is thus not just the result of financial instability, but also of how governance institutions affect the translation of risk data into strategic action. This study set out to empirically examine how corporate governance and enterprise risk management interact with financial performance to influence corporate failure among financial service institutions listed on the Lusaka Securities Exchange. The findings demonstrate that weak capital adequacy, declining earnings, and liquidity pressures significantly increase the likelihood of corporate failure. However, these financial vulnerabilities are substantially amplified in institutions characterised by weak corporate governance structures and immature enterprise risk management frameworks.

5.2 Summary Recommendations

The study proposes a set of coordinated reforms aimed at strengthening institutional resilience and enhancing supervisory effectiveness within Zambia's financial sector. These recommendations are directed at financial institutions, regulators, and government policymakers, reflecting the shared responsibility for maintaining financial stability.

At the institutional level, financial service providers are encouraged to reinforce governance structures by ensuring board independence, strengthening oversight mechanisms, and enforcing fit-and-proper standards for directors and senior executives. Greater attention should also be given to embedding enterprise risk management frameworks that are integrated, independent, and aligned with internationally recognised standards. Strengthened compliance systems, improved regulatory reporting processes, and the use of structured early warning diagnostics are recommended to support continuous monitoring rather than reactive correction. Maintaining capital buffers above minimum thresholds, diversifying funding sources, and improving asset quality management are further measures considered essential for enhancing financial resilience.

For regulators, the study recommends incorporating predictive diagnostic tools into supervisory practice to complement existing on-site and off-site monitoring frameworks. A more consistent enforcement regime, supported by transparent sanctions and time-bound corrective actions, would reinforce market discipline. Investment in supervisory data infrastructure, including standardized reporting templates and regulatory technology solutions, is also advised to improve the timeliness and reliability of risk detection. Strengthening fit-and-proper assessments for directors and senior management is emphasized; given the central role leadership quality has played in past institutional failures.



At the policy level, the research calls for periodic review and harmonization of financial sector legislation to address emerging systemic risks. Enhancing corporate transparency through improved disclosure standards, stronger audit oversight, and beneficial ownership reporting would further support accountability. Broader sector-wide risk awareness initiatives through capacity building, academic regulator collaboration, and adoption of modern risk analytics are also encouraged. Finally, formalizing professional oversight of directors through statutory recognition of a governing body could strengthen accountability and ethical standards across boards. Taken together, these recommendations advocate a shift from fragmented oversight toward a more integrated, preventive framework for financial sector governance and stability.

5.3 Policy Implications

The findings of this study carry several important implications for regulatory and supervisory practice in Zambia's financial sector.

5.3.1 Governance Reforms for the Bank of Zambia

The Bank of Zambia should move beyond formal compliance checks and adopt a more substantive approach to assessing governance effectiveness. Key priorities include enforcing minimum standards for board independence, reducing executive dominance, and preventing excessive concentration of tenure. Risk committees should be strengthened, with all listed financial institutions required to maintain separate, independent board-level risk committees. Board competency should be reinforced through mandatory certification and ongoing professional development in areas such as risk governance and financial management. Annual board performance evaluations, externally facilitated at least once every three years, should become standard, and clear accountability mechanisms must be implemented to ensure that inaction on early warning signals triggers supervisory consequences. Governance oversight should also involve structured board interviews and documented evidence demonstrating how risk reports inform strategic decision-making.

5.3.2 Mandatory Enterprise Risk Management (ERM) Disclosure

The study recommends that ERM reporting be made a mandatory component of listed financial institutions' annual reports. Such disclosure should include formal board approval of a risk appetite statement, detailed reporting lines within the risk governance system, and evidence linking risk appetite to capital planning and strategic objectives. Annual reports should also summarize the results of stress tests and scenario analyses, along with board-level discussions of emerging threats. Aligning disclosure practices with international frameworks, such as the Treadway Commission's Committee of Sponsoring Organisations (2017), can enhance transparency for investors and depositors. However, regulators should emphasize the substance of reporting over a mere checklist approach, ensuring that disclosures meaningfully reflect governance and risk practices.

5.3.3 Assessing ERM Effectiveness beyond Compliance

Supervisory assessment of ERM should move beyond documentation to include outcome-based and behavioural indicators. Metrics could include alignment of capital allocation with risk appetite limits, responsiveness to threshold breaches, the depth and frequency of board engagement on risk issues, and the integration of stress test results into capital or liquidity strategies. Near-miss analyses that document lessons from internal control failures can further inform supervisory evaluations. An ERM effectiveness scoring model combining qualitative board assessments with quantitative risk-performance consistency indicators can provide a robust framework for supervision.

5.3.4 Strengthening Risk-Based Supervision and Early Intervention

The findings support the adoption of a proactive, risk-based supervisory approach. The Bank of Zambia should implement early warning thresholds triggered by governance and ERM shortcomings, rather than relying solely on capital-based indicators. Remedial action plans should be initiated when persistent weaknesses are identified, and governance remediation programs should be mandated before financial indicators reach critical levels. Targeted thematic examinations focusing on the integration of governance and risk are also recommended. Early supervisory intervention is critical, as weak governance systems accelerate financial deterioration.

5.3.5 Board-Level Responsibility and Institutional Culture

Effective risk governance cannot be entirely delegated to management or internal risk functions. Boards must take ownership of the institution's risk appetite, continuously monitor capital-risk alignment, and embed ERM into strategic planning cycles. CEO and executive remuneration should be linked to risk-adjusted performance rather than



short-term profitability. Institutions that fail to internalize the governance-risk nexus remain structurally vulnerable, even when financial indicators appear stable.

The overarching policy lesson of this study is clear: simply raising capital and liquidity requirements is insufficient to ensure long-term stability. Sustainable resilience in emerging economies depends on fundamental institutional reforms that integrate governance quality and ERM maturity into supervisory frameworks. Corporate strength is determined not only by financial ratios but also by whether governance structures effectively convert risk information into timely corrective action.

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Evaluating the efficiency of the appraisal system in Zambia: A case study of the health sector in the Northern Province

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ABSTRACT

The effectiveness of the performance appraisal system in Zambia's health sector, particularly in the Northern Province, leaves much to be desired. Despite having formal mechanisms in place, their efficiency in enhancing performance, motivation, and service delivery remains limited. Concerns stem from inconsistent implementation, prejudice in assessments, lack of standardized evaluation criteria, and failure of follow-up on appraisal outcomes, all of which weaken the system's purpose. This study is grounded in Herzberg's Two-Factor Theory, which differentiates hygiene factors such as salary and policies from motivators such as recognition and advancement. This research employed a quantitative research method, using a cross-sectional survey to systematically collect data from participants within a defined time frame. Quantitative data was collected through the use of structured questionnaires. The target population for this research consisted of health workers based in Northern Province, involving both clinical and non-clinical employees drawn from various professional cadres. This study engaged 1,000 healthcare workers drawn from northern provinces across different categories, including clinical, administrative, and support staff. JASP statistical software was used to analyze data. The analysis involved the use of descriptive statistics to summarize the data and inferential statistical tests, including Z-tests and Chi-square tests, to identify patterns and determine significant associations among the study variables. The results indicate that only 23.5% of health workers perceived the process as fair, while 76.5% cited bias and subjectivity. 12% of the respondents reported experiencing follow-up actions after appraisal, and none received any form of recognition, pointing to systemic flaws in staff motivation. Additionally, 55% of staff did not understand the appraisal form, and 65.5% lacked clarity on performance indicators, showing significant communication and training gaps. Statistical analysis, including chi-square and Z-tests ($p < 0.001$), confirmed significant variations across categories of staff, with administrative staff exhibiting higher levels of understanding than support and clinical staff. These results indicate that the appraisal process fails to achieve its intended goals and objectives. To ensure effectiveness in the entire process, reforms should consider transparency, standardized criteria, staff training, structured feedback mechanisms, and linking performance evaluations to tangible incentives, thereby improving staff motivation, accountability, and effective healthcare delivery.

Keywords: Appraisals, Efficiency, Employee Growth, Performance, Reviews, Zambia

I. INTRODUCTION

The Sustainable Development Goals (SDGs), adopted by the United Nations in 2015, are a global blueprint for ensuring a more sustainable world by 2030 (Hak et al., 2016). Among the 17 goals, SDG number three (3) focuses on ensuring healthy lives and promoting well-being for all at all ages across the globe. This goal includes different targets, aiming at reducing maternal and child mortality, combating communicable diseases, strengthening health systems, and ensuring universal health coverage. Achieving SDG 3 calls for a robust healthcare system, adequate staffing, and a competent and motivated workforce. This is the reason why performance appraisals are important and crucial in ensuring effective healthcare service delivery (Kent & Hawkes, 2015).

The aim of SDG 3 is to improve health outcomes across the globe by addressing both preventive and curative aspects of healthcare. It highlights strengthening of the healthcare systems and infrastructure, thereby ensuring accessibility to quality services, and fostering innovation in medical research and technology. To achieve these objectives, governments and healthcare institutions need to focus on workforce efficiency, competence, and motivation. A robust performance appraisal system plays an important role in ensuring that healthcare personnel deliver high-quality services in line with SDG 3 objectives (Kieny et al., 2017).



Zambia's National Health Strategic Plan (NHSP) of 2022 to 2026 defines the country's commitment to achieving quality Universal Health Coverage (UHC) through decentralization (Munyeme et al., 2024). This strategic plan aligns with Sustainable Development Goal 3 (SDG 3), which aims to ensure healthy lives and promote well-being for all at all ages (Mulenga et al., 2017). A serious component of realizing these objectives is the effective management and evaluation of healthcare personnel through robust performance appraisal systems.

The NHSP, guiding document spells out several strategic directions to strengthen Zambia's health sector. One of the strategies is enhancing health service delivery. This strategy emphasizes the need to improve the quality and accessibility of health services to achieve quality universal health coverage. One of the strategic directions to improve Zambia's health sector is Human Resources for Health. A significant focus is placed on increasing the availability of a skilled, motivated, and equitably distributed health workforce. The NHSP aims to increase the health workforce from 48% of the establishment in 2021 to 70% by 2026. In realising this, the current political party in government (United Party for National Development) has recruited over 18,000 health workers and sent to all the parts of the country (Munyeme et al., 2024).

Performance appraisal is a very important activity for evaluating employees' value, contributions and ensuring that healthcare workers meet expected service standards (Ikramullah, et al., 2016). Effective performance evaluation tools and systems help identify strengths and areas that need improvement among healthcare professionals, leading to better patient care and operational efficiency (Kampkötter, 2017). In the context of SDG 3, appraisals provide an opportunity for aligning healthcare workers' efforts with national and global health goals.

1.1 Statement of the Problem

Despite the existence of a formal performance appraisal system in Zambia's health sector, particularly in the Northern Province, its effectiveness in enhancing staff performance, growth, motivation, and service delivery remains limited. Evidence shows widespread perceptions of bias and subjectivity. Lack of understanding of appraisal tools and performance indicators, inadequate training, and weak communication further weaken the appraisal system. Additionally, minimal follow-up actions and the absence of recognition or incentives reduce the appraisal system's motivational value. Significant variations in understanding across staff categories highlight systemic inconsistencies in implementation. These weaknesses prevent the appraisal system from achieving its intended objectives, thereby negatively affecting accountability, staff morale, and the quality of healthcare delivery in the province.

1.2 Research Hypothesis

There is no significant relationship between the identified shortcomings of the performance appraisal system (perceived bias, lack of training, inadequate follow-up, and absence of incentives) and healthcare workers' motivation, satisfaction, trust, employee performance, or service delivery outcomes in Zambia's health sector, particularly in Northern Province.

II. LITERATURE REVIEW

2.1 Theoretical Review

This study is grounded in Herzberg's Two-Factor Theory, which differentiates hygiene factors such as salary, policies, and motivators such as recognition and advancement. Within this framework, appraisals serve both as hygiene ensuring fairness and structure, and also as motivators reinforcing achievement and growth opportunities. Feedback mechanisms embedded in appraisals enhance accountability, morale, and engagement (Herzberg, 1966). Moreover, when implemented fairly, appraisals inform strategic decisions such as promotions and succession planning, contributing to both individual and organizational development.

2.1.1 The Concepts of Performance Appraisal

Performance appraisal is a systematic process through which an organization evaluates an employee's performance, contributions, and potential for growth. It serves as a central function of human resource management, providing a structured framework for assessing how well employees meet set objectives and contribute to organizational success (Armstrong, 2020). Beyond measuring performance, appraisals are designed to enhance employee development, identify training needs, and align individual efforts with institutional goals (Iqbal et al., 2015).

At its core, performance appraisal aims to create accountability by linking employee performance to organizational outcomes. It provides feedback to staff, recognizing achievements and addressing areas of improvement (DeNisi & Pritchard, 2006). When effectively implemented, appraisal systems strengthen motivation by rewarding high performers and providing clear pathways for career progression (Herzberg, 1966). In addition, appraisals serve as a management tool for strategic decision-making, such as promotions, compensation adjustments, and succession planning (Cappelli & Conyon, 2018).



Different approaches to appraisal exist, including top-down reviews, self-assessments, peer reviews, and 360-degree feedback systems. Each method carries strengths and weaknesses depending on organizational culture and objectives. For example, self-assessments encourage reflection and ownership of outcomes, while 360-degree feedback provides a more holistic view of employee contributions (Aggarwal & Thakur, 2013). Regardless of the method, fairness, transparency, and consistency are critical in ensuring employee trust and acceptance (Kuvaas, 2011).

However, performance appraisals are not without challenges. Issues such as subjectivity, favouritism, and poorly defined performance metrics can undermine their effectiveness (Lawler et al., 2012). Employees who perceive the process as biased may become demotivated and disengaged, diminishing the intended developmental impact. This is particularly critical in the health sector, where staff motivation and efficiency directly influence service delivery outcomes (Mutale et al., 2013). To address such challenges, organizations must establish standardized criteria, train evaluators, and link appraisal results to tangible outcomes such as promotions, recognition, or development opportunities.

Therefore, performance appraisal is more than just an evaluative exercise; it is a strategic human resource tool that balances accountability and employee development. Its success lies in how effectively it is communicated, understood, and applied within an organization. When managed properly, performance appraisals foster a culture of fairness, motivation, and continuous improvement, ultimately driving organizational growth and improved service delivery (Armstrong, 2020; Iqbal et al., 2015).

2.2 Empirical Review

Studies on performance appraisal maintains its dual role as both a developmental and evaluative tool within business entities. Abbas (2014) found that effective appraisal systems have a positive impact on employee motivation and organizational growth and development when they are transparent and objective. Similarly, Iqbal et al. (2015) showed that aligning appraisal outcomes to recognition, promotions and, training and development enhances employee satisfaction and productivity. However, other studies emphasize the challenges of bias and subjectivity. For instance, Cappelli and Conyon (2018) did observe that many organizations fail to operationalize standardized criteria, leading to inconsistencies that makes credibility difficult.

In the African context, private universities in Kenya have had problems with the appraisal processes that were more procedural than developmental, limiting their effectiveness. Furthermore, Mutale et al. (2013) showed that in Zambia's health sector, lack of training and weak implementation reduced the system's impact on health worker motivation. Research has also highlighted the importance of fairness perceptions; Kuvaas (2011) emphasized that employees who sees appraisals as fair and objective show higher commitment and job satisfaction. Collectively, these findings shows that while performance appraisal can enhance organizational performance, its effectiveness depends heavily on fairness and objectivity, consistency, and the integration of feedback into tangible rewards and development opportunities.

Additional studies further highlight the role of performance appraisal in improving employee performance and organizational effectiveness when properly implemented. According to Armstrong (2020) performance appraisal systems are most effective when they are supported by clear performance standards, continuous feedback, and active employee participation in the evaluation process. They argue that appraisal systems should move beyond periodic evaluation to become ongoing performance management tools that support learning and professional development. Similarly, Cappelli and Conyon (2018) emphasizes that effective performance appraisal systems contribute to improved employee engagement, accountability, and goal alignment within organizations. However, the absence of proper training for supervisors and lack of communication regarding appraisal criteria often undermine these benefits. These findings reinforce the importance of strengthening appraisal frameworks through capacity building, transparency, and regular feedback mechanisms to ensure that appraisal outcomes translate into improved individual and organizational performance.

III. METHODOLOGY

3.1 Research Design

This research employed a quantitative research method, using a cross-sectional survey to systematically collect data from participants within a defined time frame. Structured questionnaires were used to gather numerical data on healthcare workers' knowledge, perceptions, and satisfaction with the performance appraisal process. The quantitative approach enabled the study to identify measurable patterns and relationships among variables through statistical analysis. This method was appropriate for assessing the level of knowledge among health workers regarding performance appraisals and evaluating their satisfaction with how these evaluations are implemented in practice.



3.2 Target Population, Sample, and Sampling Techniques.

The target population for this research consisted of health workers based in Northern Province, involving both clinical and non-clinical employees drawn from various professional cadres. All participants had direct exposure to and experience with the province's human appraisal processes. A total of 1,000 health workers were purposively selected to take part in the study, with the sampling approach designed to ensure balanced representation from both rural and urban health facilities. Data were collected using a structured questionnaire made up of closed-ended questions that focused on key aspects such as service accessibility, operational efficiency, and system responsiveness. Participation in the study was voluntary, and informed consent was obtained from all respondents prior to data collection. The collected data was analysed using JASP statistical software, applying both descriptive and inferential statistical techniques.

3.3 Data Collection Instruments

Data collection was carried out using structured questionnaires that included both closed-ended items rated on a five-point Likert scale and open-ended questions. The questionnaire captured information on respondents' demographic characteristics, motivations for joining or remaining in the public health sector, and their levels of satisfaction across different aspects of the work environment. Administration of the questionnaires was done through a combination of electronic platforms and face-to-face engagement, depending on participants' availability and preferred mode of participation.

3.4 Method of Data Analysis

The data were analyzed using a quantitative approach. Responses from 1,000 participants were processed using JASP statistical software. The analysis involved the use of descriptive statistics to summarize the data and inferential statistical tests, including Z-tests and Chi-square tests, to identify patterns and determine significant associations among the study variables.

3.5 Ethical Consideration

Ethical considerations guided the research in order to ensure integrity and protection of respondents. Informed consent was obtained, and participation was voluntary with the right to leave at any time. Anonymity and confidentiality of responses were upheld to a larger extent. Data was used only for academic purposes, observing all ethical research guidelines and institutional approval requirements.

IV. FINDINGS & DISCUSSION

4.1 Analysis of Staff Understanding of Key Performance Indicators (KPIs) in the Health Sector

The table below shows Understanding of Key Performance Indicators (KPIs) by Staff Category in the Health Sector in the Northern Province of Zambia (2024–2025, N = 1,000).

Table 1
Distribution of Staff

Category of Staff	No. of Staff	Yes	No	Not Sure	Yes (%)	No (%)	Not Sure (%)
Medical Doctors	50	45	0	5	90	0	10
Nurses	300	100	150	50	33.33	50	16.67
Clinical Officers	100	30	70	0	30	70	0
Para - Medical Staff	200	80	105	15	40	52.5	7.5
Administrative Staff	50	40	5	5	80	10	10
Support Staff	300	20	220	60	6.67	73.33	20

An assessment of 1,000 healthcare staff members was conducted to assess their understanding of Key Performance Indicators as shown in Table 1, a crucial element in performance management. The data was analysed to determine the level of awareness across different categories of staff that included medical doctors, nurses, clinical officers, para-medical staff, administrative staff, and support staff. The analysis also aimed at assessing whether there is a meaningful relationship between staff member category and their level of understanding of KPIs.

The findings reveal a concerning trend. Out of the total 1,000 staff members surveyed, only 190 (19%) indicated that they understood what KPIs are and how they function within the workplace. On the other hand, a majority, 625 staff members (62.5%), reported that they do not understand KPIs. This suggests that a lot of health workers work without a clear understanding of the performance metrics by which their work is evaluated. Furthermore, 185 staff members (18.5%) stated they were unsure about whether they understood KPIs or not. This uncertainty reflects a broader issue of inadequate communication and training within the health ministry. To determine whether this pattern is merely

coincidental or statistically meaningful, a Chi-square test for independence was conducted. This test assesses whether there is a relationship between two categorical variables in this case, staff category and understanding of KPIs.

The results of the Chi-square test are as follows:

Chi-square Statistic: 202.28

Degrees of Freedom (df): 10

P-Value: 5.41×10^{-38}

The p-value obtained is significantly lower than the standard threshold of 0.05, leading us to reject the null hypothesis. This means there is a statistically significant association between the staff category and the level of KPI understanding. In other words, the likelihood that staff understand KPIs is not uniform across all categories; it depends on the role or professional grouping to which they belong.

4.2 Understanding of the Appraisal Form among Health Sector Staff

The table below shows Understanding of the Appraisal Form by Category in the Health Sector in the Northern Province of Zambia (2024–2025, N = 1,000).

Table 2

Percentage Distribution of Staff

Staff Category	Total (N)	Yes (n)	No (n)	Not Sure (n)	Yes (%)	No (%)	Not Sure (%)
Medical Doctors	50	20	25	5	40	50	10
Nurses	300	50	200	50	16.7	66.7	16.7
Clinical Officers	100	10	80	10	10	80	10
Para-Medical Staff	200	20	165	15	10	82.5	7.5
Administrative Staff	50	15	30	5	30	60	10
Support Staff	300	5	275	20	1.7	91.7	6.7
Total	1000	120	775	105	12	77.5	10.5

4.3 Chi-square Statistical Analysis

To further understand whether the differences in understanding vary significantly by staff category, a Chi-square test for independence was conducted. The results were as follows:

Chi-square statistic: 256.65

Degrees of freedom: 10

P-value: 2.16×10^{-49}

The extremely small p-value (significantly less than the standard threshold of 0.05) indicates that the differences in understanding across various categories of staff are statistically significant. In other words, the variation in whether staff understand the appraisal form is not random, it is strongly associated with the category of staff (e.g., medical doctors, nurses, support staff, etc.). This means certain staff categories are significantly more likely to understand the appraisal form than others. For instance, medical doctors and administrative staff have a clear understanding, while nurses, clinical officers, and support staff are disproportionately represented among those who either do not understand the form or are unsure.

4.4 Absence of Incentives and Recognition Following Performance Appraisals

The Provision of Incentives and Recognition Following Performance Appraisals Across Healthcare Staff Categories in the Northern Province of Zambia (2024–2025, N = 1,000)

Table 3

Descriptive Statistics

Staff Category	Yes (n)	No (n)	Total (N)	% Yes	% No
Medical Doctors	0	50	50	0.0%	100%
Nurses	0	300	300	0.0%	100%
Clinical Officers	0	100	100	0.0%	100%
Para-Medical Staff	0	200	200	0.0%	100%
Administrative Staff	0	50	50	0.0%	100%
Support Staff	0	300	300	0.0%	100%
Total	0	1000	1000	0.0%	100%

4.5 Staff Responses on the Presence of Follow-Up Actions after Performance Appraisal Exercises

Responses on the Presence of Follow-Up Actions After Performance Appraisal Exercises by Staff Category in the Northern Province of Zambia (2024–2025, N = 1,000)

**Table 4***Distribution of Healthcare Staff*

Staff Category	Yes	No	Not Sure	Total
Medical Doctors	20	25	5	50
Nurses	50	200	50	300
Clinical Officers	10	80	10	100
Para-Medical Staff	20	165	15	200
Administrative Staff	15	30	5	50
Support Staff	5	275	20	300

Chi-Square Test of Independence

Chi-Square Statistic: 116.02

Degrees of Freedom: 10

P-Value: 3.24×10^{-20}

This extremely low p-value indicates a statistically significant difference in follow-up action responses across different staff categories. Perceived Bias in the Performance Appraisal Process. Perceptions on Fairness and Bias in the Performance Appraisal Process by Staff Category in the Northern Province of Zambia (2024–2025, N = 1,000).

Table 5*Distribution of Healthcare Staff*

Staff Category	Fair (Yes)	Biased (No)	Not Sure	Total	% Fair	% Biased	% Not Sure
Medical Doctors	15	20	15	50	30	40	30
Nurses	50	200	50	300	16.67	66.67	16.67
Clinical Officers	20	50	30	100	20	50	30
Para-Medical Staff	50	100	50	200	25	50	25
Administrative Staff	20	22	8	50	40	44	16
Support Staff	80	120	100	300	26.67	40	33.33

Chi-Square Test of Independence

Chi-Square Statistic: 57.34

Degrees of Freedom: 10

P-Value: 1.15×10^{-8}

This result indicates a statistically significant association between staff category and their perception of whether the appraisal process is fair, biased, or uncertain. The p-value is far below the commonly accepted significance level of 0.05 (and even 0.01), indicating that the observed differences in response patterns across staff categories are statistically significant.

Z-Test for Proportion of 'Fair' Responses

Z-Statistic: -19.76

P-Value: 6.04×10^{-87}

Total 'Fair' Responses: 235

Total Responses: 1000

Proportion of 'Fair' Responses: 23.5%

This test confirms that the proportion of staff who believe the appraisal process is fair is significantly lower than 50%, highlighting a strong perception of bias among the workforce.

4.6 Discussion**4.6.1 Understanding of Key Performance Indicators**

The results reveal meaningful differences in the understanding of Key Performance Indicators among different categories of health workers. While administrative staff and medical doctors demonstrate relatively high levels of KPI awareness, a majority of nurses, para-medical staff, clinical officers, and support staff show limited understanding. These variations highlight a crucial weakness in performance management processes within the healthcare sector.

These findings are concerning given that these categories represent the majority of frontline service providers. Lack of awareness may hinder effective monitoring of individual and institutional performance and affect accountability and service quality.

According to Armstrong (2020) key performance indicators are important to strategic performance management, enabling organizations to track progress and make decisions based on verified data. Similarly, without a clear understanding of performance indicators, employees cannot align their efforts with institutional priorities, leading to fragmented service delivery.



In the health sector, the World Health Organization (2009) emphasizes that all healthcare workers, regardless of rank, must understand and apply performance metrics to contribute meaningfully to quality improvement initiatives. Furthermore, research by Mutale et al., (2013) in Zambia found that lack of knowledge and meaningful training on performance management tools is a major constraint in strengthening health systems.

The performance appraisal system in Zambia's health sector is designed to assess healthcare workers based on predetermined criteria, including job performance, skills, adherence to operational guidelines, and professional growth and development. This system aims to enhance employee productivity, give feedback for improvement, and enhance career progression. The appraisal process typically involves self-assessments, peer reviews, supervisor evaluations, and patient feedback to ensure a wider evaluation of healthcare personnel.

An effective appraisal system in Zambia's health sector is important for upholding high standards of healthcare service delivery (Selvarajan & Cloninger, 2012). Performance appraisals provide a structured mechanism for assessing healthcare workers based on their skills, competencies, efficiency, and adherence to all professional standards (Daoanis, 2012). This approach ensures that employees meet the required job expectations while continuously improving their competencies. By using reliable assessment criteria, the system upholds fairness and objectivity, reducing biasness in the entire process (Miller & Thornton, 2006).

4.6.2 Understanding of the Appraisal Form in the Health Sector

The findings highlight a critical weakness in the performance appraisal system within Zambia's health sector namely, inadequate staff comprehension of the appraisal form. Effective performance appraisal systems are predicated not only on the tools and structures used but also on how well employees understand, appreciate and engage with them. A workforce that does not understand the appraisal tool used to evaluate its performance is unlikely to benefit from the progressive, motivational, or administrative outcomes such systems are designed to support and provide aligning with Jones, et al. (2005) findings.

As noted by Armstrong (2020) the success of performance appraisal systems is highly dependent on the precision of communication and mutual understanding of the tools used. If employees are not aware of the purpose, structure, or use of appraisal tools, the process becomes a mere administrative exercise rather than a vehicle for growth and accountability. Moreover, poor understanding of appraisal tools has been linked to employee disengagement and scepticism. DeNisi and Pritchard (2006) argue that perceptions of fairness and clarity are key to the acceptance of appraisal systems. When appraisal processes are not understood, employees are more likely to view them as ineffective, which reduces their impact on performance improvement.

The variation in understanding across staff categories also points to structural inequalities in training and orientation. Studies in the health sector in low- and middle-income countries, including Zambia, have shown that support staff and frontline clinical personnel often receive limited exposure to management tools and policies (Mwema & Gachunga, 2014). This marginalization in capacity building may explain the disproportionately low comprehension among nurses, clinical officers, and support staff. Eventually, improving understanding of performance appraisal tools entails deliberate, inclusive training efforts and open, transparent communication. Aligning such interventions by staff category could help bridge notable gaps, enhance confidence in appraisal outcomes, and foster a more performance-driven culture in the health sector (Kamfwa, 2016).

4.6.3 Absence of Incentives and Recognition in Performance Appraisals

The complete absence of incentives following performance appraisals across all categories of staff shows a fundamental breakdown in Zambia's performance management system within the health sector. The lack of recognition undermines one of the fundamental principles of appraisal systems to develop, motivate, and retain competent personnel. Performance appraisals are most effective when they are directly linked to tangible outcomes such as promotions, bonuses, or professional recognition. Without such outcomes, appraisal systems risk becoming routine bureaucratic and academic exercises devoid of motivational value (Farrell, 2013).

All 1,000 respondents in the survey, including medical doctors, nurses, clinical officers, para-medical staff, administrative staff, and support staff, unanimously reported receiving no form of incentive or recognition after their appraisal exercise. This finding was further supported by statistical analysis. A z-test for proportions revealed a z-statistic of -36.98 and a p-value of 2.52×10^{-299} , confirming that the observed proportion of staff receiving rewards (0.0%) is significantly lower than the expected standard of 50% in a functioning merit-based system. The result is statistically robust and points to systemic neglect. This absence of positive reinforcement contradicts findings in motivation theory. Herzberg's Two-Factor Theory, for instance, identifies recognition as a key motivator for improved employee performance. Similarly, research by DeNisi and Pritchard (2006) emphasizes that for appraisal systems to be effective, they must be anchored on positive outcomes. The failure to integrate incentives and recognition into Zambia's appraisal framework represents a critical flaw that likely affects morale, commitment, and ultimately, service delivery. Addressing this gap should be a top priority in public sector HR reform.



4.6.4 Follow-Up Actions after Performance Appraisal Exercises

The findings reveal a critical weakness in Zambia's health sector performance appraisal system namely, the lack of follow-up actions after evaluations. Only 12% of staff reported any post-appraisal engagement, a figure significantly lower than expected in a functioning performance management system. This was confirmed statistically through a chi-square test ($\chi^2 = 116.02$, $p < 0.0001$), which showed that follow-up rates vary significantly by staff category, and a z-test ($z = -36.98$, $p < 0.0001$), confirming the deficiency is statistically significant.

Follow-up actions such as feedback meetings, training, and development plans are important to make appraisals meaningful and developmental (Tuýtens & Devos, 2012). Without these, the system risks being perceived as punitive or ceremonial. Similarly, DeNisi and Pritchard (2006) argue that the utility of performance evaluations is reduced when they do not inform subsequent managerial decisions or employee development activities. The absence of follow-up undermines employee engagement, learning, and organizational improvement key goals of any appraisal framework (Roberts, 2003).

4.6.5 Perceived Bias in the Performance Appraisal Process

The perception of bias and subjectivity in performance appraisals poses a serious threat to the reliability of performance management systems in the health sector. When employees believe that appraisals are influenced more by favouritism and personal judgments than by objective performance criteria, it undermines both the fairness and effectiveness of the entire process. Armstrong (2020) emphasizes that for performance management systems to succeed, they must be seen as equitable, consistent, and transparent. Without these important attributes, appraisal systems fail to motivate employees, reduce engagement, and often lead to resentment or resistance.

In healthcare settings, where teamwork, trust, and morale are critical, biased and ineffective appraisal systems can have especially have adverse effects. DeNisi and Pritchard (2006) argue that employee perceptions of injustice in performance evaluations significantly reduce their motivation and commitment to organizational goals. Kuvaas (2011) further highlights that perceived fairness in performance evaluations is strongly correlated with positive employee outcomes, such as higher job satisfaction, stronger organizational commitment, and better overall performance.

The common perception of bias in Zambia's health sector is rooted in how inconsistently the appraisal system is implemented. Many performance evaluations lack clear and standardized criteria, and supervisors are often not adequately trained to carry out fair and objective assessments. As a result, employees feel judged according to personal preferences or vague expectations, leading to experiences of unfair treatment. Cardy and Leonard (2014) argue that structured training for evaluators and the use of specific, measurable performance indicators is crucial in reducing subjectivity. When such systems are in place, they provide a reliable framework that helps ensure evaluations are consistent across different departments and roles. In contrast, without this structure, evaluators may apply varying standards from one case to another. Buckner (2023) warns that such inconsistencies can undermine confidence in the system, leaving workers feeling overlooked or treated unfairly, which ultimately weakens morale and trust in leadership.

4.6.6 Theoretical Contribution and Novelty

This research makes significant theoretical contributions by advancing understanding of performance appraisal effectiveness within the African health sector context, an area that has received limited scholarly attention. It integrates organizational behaviour and human resource management theories to show how fairness, transparency, and incentives mediate employee motivation and service delivery outcomes. By applying Herzberg's Two-Factor Theory and concepts of organizational justice, the study shows how perceptions of bias, lack of training, and poor feedback mechanisms weaken trust in appraisal systems, ultimately affecting employee productivity.

What sets this research apart is its use of an extensive dataset involving 1,000 healthcare workers from Zambia's Northern Province. By applying rigorous statistical methods which include Chi-square and Z-tests, it offers strong empirical evidence pointing to deep-rooted challenges within the appraisal system. Unlike many earlier studies that focused broadly on workforce issues, this research draws a direct connection between how performance appraisals are conducted and the resulting service delivery shortcomings, especially in under-resourced settings. This connection is rarely explored in such depth, making the study valuable not only to academic audiences but also to policymakers aiming to improve healthcare outcomes. The findings bring insight into how overlooked appraisal practices can quietly erode efficiency, staff confidence, and retention which are critical factors to delivering quality healthcare. In doing so, the study contributes new knowledge to the field while also providing practical direction for reforming appraisal systems in similar low-resource environments.

4.6.7 Strengths and Limitations of the Study

A key strength of this study lies in its use of a large sample size, which enhances the reliability and robustness of the findings, as well as the application of well-established theories grounded in employee motivation and productivity. These theoretical foundations strengthen the study's analytical depth and interpretive validity. However, the study is not without limitations. Its focus on a single province may limit the extent to which the findings can be generalized to the



national and regional context. In addition, restricted access to some remote rural health facilities may have constrained participation from certain staff categories.

V. CONCLUSION & RECOMMENDATION

5.1 Conclusion

Performance appraisal systems play a very important role in reviewing and enhancing employee performance within Zambia's health sector. However, findings from this study reveal notable deficiencies in Northern Province. Across all staff categories, many employees perceive the appraisal process as biased and lack objectivity, which has contributed to a loss of trust and reduced motivation. A significant concern is the lack of training. None of the staff surveyed reported having received formal guidance on how appraisals should be conducted, severely undermining the process's credibility and fairness. Apart from that, appraisal results are rarely used to inform important human resource decisions such as promotions, training opportunities, or recognition of outstanding performance. This practice makes the process largely ineffective in achieving its intended purpose. Compounding the issue is the complete absence of incentive mechanisms to reward high-performing staff. The lack of motivation and performance-based rewards has weakened the culture of accountability and improvement, posing a serious threat to service delivery and workforce morale.

5.2 Recommendations

To improve the effectiveness of performance appraisal systems, organizations including public service should adopt a comprehensive approach that combines fairness, training, structured feedback, and meaningful recognition. Transparent evaluation criteria must be understood to foster trust in the system and promote accountability. Eliminating perceptions of bias through clear standards helps create a more equitable and effective environment. Additionally, regular follow-up is very important. It allows for constructive feedback on employee strengths and areas needing improvement, while also guiding decisions on training and development. Investing in training for both supervisors and staff is equally important. Supervisors need the appraisal skills to conduct objective, respectful evaluations, and employees should be equipped to participate confidently and meaningfully in the process. Moreover, recognizing outstanding performance through promotions, bonuses, or even public appreciation reinforces a positive culture and motivates staff to excel. When these components are consistently applied, performance appraisal systems gain credibility, boost morale, increase productivity, and ultimately lead to better healthcare service delivery.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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L'audiovisuel comme levier pour améliorer l'expression orale en FLE : Étude de cas au Groupe scolaire Rutunga (Rwanda)

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RÉSUMÉ

Cette étude analyse l'apport de l'audiovisuel dans l'amélioration de l'expression orale en français langue étrangère (FLE) dans le contexte des écoles secondaires rwandaises. S'inscrivant dans les cadres théoriques de la compétence communicative, de l'apprentissage multimédia et de la théorie de l'autodétermination, la recherche examine les effets cognitifs et motivationnels de l'audiovisuel sur les apprenants. L'étude adopte une approche qualitative interprétative fondée sur une étude de cas menée au Groupe scolaire Rutunga. La population de l'étude est constituée de trois enseignants de FLE et de trente élèves de première année du secondaire. Les données ont été recueillies à travers l'analyse documentaire, des observations de classe, des entretiens semi-directifs avec les enseignants et un questionnaire administré aux élèves. Les résultats révèlent que l'usage de supports audiovisuels favorise la motivation, la participation orale et la confiance en soi des apprenants. Les élèves exposés à ces supports manifestent un plus grand intérêt pour les activités d'expression orale et participent davantage aux interactions en classe. L'audiovisuel contribue également à une amélioration perçue de la prononciation, de l'intonation et de la fluidité, surtout dans des situations guidées. Toutefois, son utilisation demeure irrégulière et dépend largement des initiatives individuelles des enseignants. L'étude met en évidence plusieurs contraintes, notamment le manque d'équipements, l'absence de formation spécifique et le temps limité consacré au cours de français. En conclusion, l'audiovisuel apparaît comme un levier pertinent pour le développement de l'expression orale en FLE, à condition d'être intégré de manière systématique et soutenu par des mesures pédagogiques, formatives et institutionnelles adaptées.

Mots-clés : Audiovisuel, Expression Orale, FLE, Motivation, Multimodalité, Rwanda

ABSTRACT

This study examines the contribution of audiovisual materials to the improvement of oral expression in French as a Foreign Language (FLE) within the context of Rwandan secondary schools. Grounded in the theoretical frameworks of communicative competence, multimedia learning, and self-determination theory, the research explores the cognitive and motivational effects of audiovisual input on learners. The study adopts a qualitative interpretative approach based on a case study conducted at Groupe scolaire Rutunga. The study population consisted of three FLE teachers and thirty first-year secondary students. Data were collected through document analysis, classroom observations, semi-structured interviews with teachers, and a questionnaire administered to students. The findings indicate that audiovisual materials enhance learners' motivation, oral participation, and self-confidence. Students exposed to these materials show greater interest in oral activities and participate more actively in classroom interactions. Audiovisual input also contributes to perceived improvements in pronunciation, intonation, and fluency, particularly in guided situations. However, its use remains irregular and largely dependent on teachers' individual initiatives. The study highlights several constraints, including insufficient equipment, lack of specific teacher training, and limited instructional time. In conclusion, audiovisual materials appear to be a relevant pedagogical lever for improving oral expression in FLE, provided that their integration is systematic and supported by appropriate pedagogical, training, and institutional measures.

Keywords: Audiovisual, Oral Expression, FFL, Motivation, Multimodality, Rwanda

I. INTRODUCTION

Dans le contexte contemporain marqué par la mondialisation des échanges et l'évolution rapide des technologies éducatives, l'enseignement des langues étrangères connaît de profondes transformations méthodologiques. L'intégration des technologies de l'information et de la communication (TIC) s'impose désormais comme un enjeu majeur pour la didactique des langues (Narcy-Combes, 2005 ; Guichon, 2012). Ces technologies ne constituent plus de simples outils techniques, mais des médiateurs pédagogiques capables de transformer les pratiques

d'enseignement et les dynamiques d'apprentissage. Dans le domaine du français langue étrangère (FLE), le développement de la compétence communicative constitue un objectif central. Les travaux fondateurs de Canale et Swain (1980) ont montré que la compétence linguistique ne suffit pas : l'apprenant doit également développer des compétences sociolinguistiques, discursives et stratégiques. Cette perspective est reprise et consolidée par le Cadre européen commun de référence pour les langues (Conseil de l'Europe, 2003), qui place l'apprenant au cœur de situations d'action et souligne l'importance des activités de production orale dans l'acquisition d'une langue.

Dans cette logique, l'audiovisuel apparaît comme un levier pédagogique particulièrement pertinent. En mobilisant simultanément les canaux auditif et visuel, il permet une exposition contextualisée à des modèles linguistiques authentiques. La théorie de l'apprentissage multimédia développée par Mayer (2001) démontre que l'association cohérente de l'image et du son favorise un traitement cognitif plus efficace de l'information. Les recherches ultérieures confirment que l'input multimodal facilite la compréhension, la mémorisation et la réutilisation des éléments linguistiques (Guichon & McLornan, 2008 ; Fievez, 2020). Au-delà des processus cognitifs, la dimension motivationnelle joue un rôle déterminant dans l'apprentissage des langues. Selon la théorie de l'autodétermination (Deci & Ryan, 2000 ; 2013), l'engagement des apprenants dépend de la satisfaction de trois besoins psychologiques fondamentaux : l'autonomie, la compétence et l'appartenance sociale. Dans la classe de langue, des supports dynamiques et interactifs comme l'audiovisuel peuvent renforcer le sentiment de compétence et stimuler la motivation intrinsèque. Dörnyei (2001) souligne également que la motivation constitue l'un des facteurs les plus influents dans la réussite en langue étrangère.

Sur le plan méthodologique, les approches communicatives et actionnelles, décrites respectivement par Richards et Rodgers (2014) et Puren (2006), insistent sur l'importance de placer l'apprenant en situation d'interaction réelle. L'audiovisuel peut servir de déclencheur d'activités communicatives, favorisant la prise de parole, la reformulation et les jeux de rôle. Dans le contexte rwandais, la question revêt une importance particulière. L'évolution de la politique linguistique et la reconfiguration du paysage éducatif ont modifié la place du français dans le système scolaire (Rosendal & Amini Ngabonziza, 2023). Bien que le français demeure une langue officielle et un atout stratégique, plusieurs études soulignent des difficultés persistantes dans le développement de la compétence orale chez les apprenants (Mbonabu, 2024). Les occasions d'exposition authentique à la langue restent limitées, et l'expression orale constitue souvent la compétence la plus fragile.

Malgré le potentiel reconnu de l'audiovisuel par la littérature scientifique, son intégration effective dans les pratiques pédagogiques rwandaises demeure peu documentée. Il existe ainsi un décalage entre les recommandations théoriques issues de la didactique des langues et les réalités concrètes des classes. C'est dans cette perspective que la présente étude se propose d'analyser l'audiovisuel comme levier d'amélioration de l'expression orale en FLE, à travers une étude de cas menée au Groupe scolaire Rutunga. L'objectif est d'examiner à la fois les effets perçus sur la motivation et la compétence orale des apprenants, ainsi que les contraintes pédagogiques et institutionnelles qui conditionnent son intégration.

1.1 Énoncé du Problème

L'enseignement du français langue étrangère (FLE) s'inscrit aujourd'hui dans le cadre de l'approche communicative et de la perspective actionnelle, qui placent le développement de la compétence communicative au centre des apprentissages (Canale & Swain, 1980 ; Conseil de l'Europe, 2003 ; Puren, 2006). Selon ces cadres théoriques, la maîtrise de l'expression orale constitue un objectif prioritaire, dans la mesure où elle conditionne la capacité de l'apprenant à interagir efficacement dans des situations authentiques de communication. Cependant, dans le contexte rwandais actuel, marqué par une reconfiguration du paysage linguistique depuis la réforme éducative de 2008, le français occupe désormais le statut de langue étrangère enseignée comme discipline scolaire. Les travaux de Rosendal et Amini Ngabonziza (2023) montrent que cette évolution s'accompagne de transformations idéologiques et pratiques qui influencent la place effective du français dans les établissements scolaires. Dans ce contexte, plusieurs recherches récentes soulignent la persistance de difficultés importantes en expression orale chez les apprenants du secondaire (Mbonabu, 2024).

Or, les orientations contemporaines en didactique des langues insistent sur la nécessité d'intégrer les technologies de l'information et de la communication (TIC) afin de favoriser des situations d'apprentissage plus interactives et contextualisées (Narcy-Combes, 2005 ; Guichon, 2012). L'usage de l'audiovisuel s'inscrit dans cette dynamique : en mobilisant simultanément les canaux visuel et auditif, il favorise un traitement cognitif plus efficace de l'information (Mayer, 2001 ; 2014) et permet une exposition accrue à des modèles linguistiques authentiques (Guichon & McLornan, 2008 ; Fievez, 2020). Du point de vue motivationnel, la théorie de l'autodétermination développée par Deci et Ryan (2000, 2013) souligne que l'engagement des apprenants dépend largement de la satisfaction des besoins d'autonomie, de compétence et d'appartenance. Dans le domaine de l'enseignement des langues, Dörnyei (2001) met en évidence le rôle central de la motivation dans la participation orale. L'audiovisuel pourrait ainsi constituer un levier favorisant à la fois l'engagement et la confiance en soi lors des productions orales.

Toutefois, malgré ce potentiel théorique largement documenté, l'intégration effective des TIC et des supports audiovisuels dans les pratiques pédagogiques demeure souvent limitée par des contraintes institutionnelles, matérielles et formatives (Narcy-Combes, 2005 ; Guichon, 2012). Il apparaît alors un décalage entre les prescriptions curriculaires inspirées du Cadre européen commun de référence pour les langues (Conseil de l'Europe, 2003) et les pratiques réellement observées dans les classes.

Dès lors, une tension se dessine entre :

D'une part, les exigences théoriques et curriculaires qui valorisent l'oral, l'interaction et l'usage des TIC ;

D'autre part, les difficultés persistantes des apprenants en expression orale et l'intégration encore irrégulière de l'audiovisuel dans les établissements secondaires rwandais.

La problématique centrale de cette recherche peut ainsi être formulée comme suit :

Dans quelle mesure l'intégration pédagogique de l'audiovisuel peut-elle constituer un levier efficace pour améliorer l'expression orale en français langue étrangère dans le contexte des écoles secondaires rwandaises, et quels facteurs institutionnels, didactiques et motivationnels conditionnent son impact réel ?

Cette problématique s'inscrit dans une perspective de recherche qualitative (Creswell, 2009; Denzin & Lincoln, 2011 ;Miles et al., 2014), visant à analyser en profondeur les pratiques effectives, les perceptions des acteurs et les contraintes contextuelles, afin de mieux comprendre les conditions d'une intégration responsable et contextualisée des TIC en didactique des langues.

1.2 Objectifs de la Recherche

- i. Examiner l'influence de l'audiovisuel sur la compétence orale des apprenants ;
- ii. Identifier les pratiques pédagogiques mises en œuvre par les enseignants pour exploiter les supports audiovisuels ;
- iii. Analyser les obstacles qui freinent l'intégration systématique de l'audiovisuel dans les classes de FLE;
- iv. Recueillir les perceptions des apprenants concernant l'apport de l'audiovisuel dans leur apprentissage du français.

1.3 Questions de Recherche

- i. Dans quelle mesure l'utilisation de l'audiovisuel contribue-t-elle à l'amélioration de l'expression orale des apprenants en FLE au Groupe scolaire Rutunga ?
- ii. Quelles pratiques pédagogiques les enseignants de FLE mettent-ils en œuvre pour exploiter les supports audiovisuels en classe ?
- iii. Quels obstacles techniques, pédagogiques et institutionnels entravent l'intégration systématique de l'audiovisuel dans les pratiques de classe ?
- iv. Comment les apprenants perçoivent-ils l'apport de l'audiovisuel dans le développement de leur compétence orale en français ?

II. REVUE DE LA LITTÉRATURE

2.1 Revue théorique

2.1.1 Compétence Communicative et Centralité de L'oral

La compétence orale en langue étrangère s'inscrit dans le cadre plus large de la compétence communicative. Selon Canale et Swain (1980), celle-ci comprend quatre composantes : la compétence grammaticale, sociolinguistique, discursive et stratégique. L'expression orale mobilise simultanément ces dimensions, ce qui explique sa complexité dans l'apprentissage d'une langue étrangère.

Le Conseil de l'Europe (2001), à travers le Cadre européen commun de référence pour les langues (CECRL), adopte la perspective actionnelle et considère l'apprenant comme un acteur social engagé dans des tâches communicatives authentiques. L'oral y occupe une place centrale à travers les activités d'interaction, de production et de médiation.

Dans cette perspective, Puren (2006) souligne que les tâches contextualisées et signifiantes favorisent l'engagement actif et le développement de la compétence orale. L'audiovisuel peut alors servir de support facilitateur en proposant des modèles authentiques de communication.

2.1.2 Intégration des TIC en didactique des langues

L'usage de l'audiovisuel s'inscrit dans le mouvement d'intégration des technologies de l'information et de la communication (TIC) en didactique des langues. Narcy-Combes (2005) insiste sur la nécessité d'une intégration pédagogique raisonnée des technologies, fondée sur les besoins des apprenants et les objectifs didactiques.

Guichon (2012) montre que les TIC transforment les modalités d'interaction pédagogique et enrichissent l'exposition à la langue cible. Toutefois, l'efficacité de ces outils dépend des scénarios pédagogiques mis en place et des conditions institutionnelles.

La multimodalité – combinaison d'images, de sons et de textes – peut soutenir la compréhension et la production orale lorsqu'elle est exploitée de manière didactique.

2.1.3 Théorie de l'Apprentissage Multimédia

La théorie de l'apprentissage multimédia développée par Mayer (2001, 2014) repose sur trois principes fondamentaux : le double canal de traitement (visuel et auditif), la capacité limitée de la mémoire de travail et le traitement actif de l'information.

Selon Mayer (2014), l'apprentissage est optimisé lorsque l'apprenant sélectionne, organise et intègre activement les informations issues des deux canaux. En FLE, l'audiovisuel favorise l'association entre la prononciation, l'intonation et le contexte visuel, facilitant ainsi la compréhension et la mémorisation.

2.1.4 Motivation et Théorie De L'autodétermination

La théorie de l'autodétermination de Deci et Ryan (2000, 2013) postule que la motivation intrinsèque repose sur la satisfaction des besoins d'autonomie, de compétence et d'appartenance sociale.

L'audiovisuel peut contribuer à satisfaire ces besoins en rendant les activités plus engageantes, en facilitant la compréhension et en favorisant les interactions entre pairs.

Dans le domaine de l'apprentissage des langues, Dörnyei (2001) souligne que les stratégies motivationnelles influencent significativement la participation orale et la réduction de l'anxiété linguistique.

2.2 Revue Empirique

Les recherches empiriques montrent que l'intégration de supports audiovisuels peut améliorer la compétence orale des apprenants de langue étrangère.

Guichon et McLornan (2008) mettent en évidence que les environnements multimodaux favorisent l'engagement et soutiennent la production orale lorsqu'ils sont accompagnés d'un encadrement pédagogique structuré. De même, Fievez (2020) souligne que l'usage réfléchi des technologies numériques peut renforcer la participation et la motivation des apprenants.

Dans le contexte rwandais, les travaux de Rosendal et Ngabonziza (2023) montrent que les évolutions de la politique linguistique influencent les pratiques d'enseignement du français. Par ailleurs, Mbonabuca (2024) révèle des difficultés persistantes en compétence orale dans les écoles secondaires, notamment liées à une exposition limitée à des situations authentiques de communication.

Ces résultats suggèrent que l'intégration structurée de l'audiovisuel pourrait constituer un levier pertinent pour améliorer l'expression orale, sous réserve de conditions pédagogiques, matérielles et formatives adéquates.

III. METHODOLOGIE

3.1 Type et design de recherche

La présente étude s'inscrit dans une approche qualitative interprétative. Ce choix méthodologique se justifie par la volonté d'explorer en profondeur les pratiques pédagogiques, les perceptions des enseignants et les expériences vécues par les apprenants concernant l'usage de l'audiovisuel dans l'enseignement de l'expression orale en français langue étrangère (FLE). Selon Creswell (2009), la recherche qualitative vise à comprendre un phénomène dans son contexte naturel en s'appuyant sur les significations que les participants attribuent à leurs expériences. Dans la même perspective, Denzin et Lincoln (2011) soulignent que la recherche qualitative repose sur une démarche interprétative permettant d'analyser des réalités sociales complexes dans leur environnement authentique. Le design retenu est celui de l'étude de cas unique. L'étude de cas permet d'examiner un phénomène contemporain dans un cadre spécifique et délimité, en tenant compte des interactions entre acteurs, pratiques pédagogiques et contexte institutionnel (Creswell, 2009). Le Groupe scolaire Rutunga constitue ainsi le terrain d'investigation principal de cette recherche.

3.2 Site de l'Étude et Participants

La population cible se compose des cinq enseignants de français de l'établissement ainsi que des 173 élèves inscrits en première année du secondaire, correspondant au tronc commun. Parmi les cinq enseignants, trois ont été retenus pour l'étude.

Parmi les 173 élèves, un échantillon de trente apprenants a été sélectionné par échantillonnage aléatoire simple.

L'échantillon retenu comprend trois enseignants de FLE, sélectionnés par échantillonnage raisonné en raison de leur implication directe dans l'enseignement de l'expression orale et de leur disponibilité à participer à

l'étude. Il inclut également trente élèves, choisis par échantillonnage aléatoire simple parmi les 173 élèves de première année, afin d'assurer une certaine diversité au sein du groupe étudié.

Ce choix méthodologique s'inscrit dans une approche qualitative qui privilégie la profondeur de l'analyse et la richesse des données plutôt que la représentativité statistique, conformément aux principes exposés par Creswell (2009).

3.3 Outils de Collecte des Données

Dans une logique de triangulation méthodologique, recommandée en recherche qualitative (Denzin & Lincoln, 2011), quatre instruments de collecte ont été mobilisés.

3.3.1 Analyse Documentaire

L'analyse documentaire a porté sur le curriculum officiel, les manuels de FLE utilisés ainsi que les plans de leçon et fiches pédagogiques des enseignants. Cette analyse visait à identifier la place formellement accordée à l'audiovisuel dans les orientations pédagogiques et dans la planification des séquences didactiques.

3.3.2 Observations de Classe

Six séances de FLE ont été observées à l'aide d'une grille d'observation structurée. Ces observations visaient à analyser la fréquence d'utilisation des supports audiovisuels, les modalités de leur exploitation pédagogique, le niveau de participation orale des élèves ainsi que la nature des interactions entre l'enseignant et les élèves.

3.3.3 Entretiens Semi-Directifs

Trois entretiens semi-directifs ont été menés auprès des enseignants de FLE. Ce type d'entretien permet de recueillir des données approfondies tout en conservant une certaine souplesse dans l'exploration des thématiques, conformément aux principes méthodologiques présentés par Creswell (2009). Les échanges ont porté sur les pratiques d'intégration de l'audiovisuel, sur les perceptions de son efficacité dans le développement de l'expression orale, ainsi que sur les contraintes matérielles et institutionnelles rencontrées dans sa mise en œuvre.

3.3.4 Questionnaire à Visée Descriptive

Un questionnaire a été administré aux 30 élèves sélectionnés. Bien qu'il comporte des données chiffrées simples (fréquences et pourcentages), son objectif n'était pas statistique mais interprétatif. Comme le soulignent Miles et al. (2014), un questionnaire peut être intégré à une démarche qualitative lorsqu'il sert à enrichir l'analyse et à soutenir la triangulation des données.

3.4 Procédure de Collecte des Données

La collecte des données s'est déroulée en plusieurs étapes successives. Elle a d'abord consisté en l'obtention de l'autorisation auprès de la direction de l'établissement, suivie de l'analyse des documents pédagogiques. Les observations de classe ont ensuite été réalisées, puis des entretiens ont été conduits avec les enseignants. Enfin, un questionnaire a été administré aux élèves afin de compléter les informations recueillies. Afin de garantir des réponses fondées sur une expérience concrète, certaines séances intégrant des supports audiovisuels à l'aide d'un projecteur ont été organisées durant la période d'enquête. Cette intervention visait à assurer des conditions d'observation comparables, sans modifier durablement les pratiques pédagogiques institutionnelles.

3.5 Analyse des Données

L'analyse des données a suivi une démarche inductive, caractéristique de la recherche qualitative.

Conformément au modèle proposé par Miles et al. (2014), l'analyse s'est déroulée en trois étapes :

Réduction des données : sélection, codage et catégorisation des informations pertinentes.

Présentation des données : organisation en tableaux descriptifs et synthèses thématiques.

Interprétation et vérification : mise en relation des résultats avec le cadre théorique et les questions de recherche.

La comparaison des données issues des différentes sources (entretiens, observations, questionnaire et documents) a permis d'assurer la cohérence et la crédibilité des résultats par triangulation.

3.6 Considérations Éthiques

La participation des enseignants et des élèves s'est faite sur une base volontaire. Les participants ont été informés des objectifs de la recherche et de l'usage académique des données collectées. L'anonymat et la confidentialité des informations ont été garantis tout au long du processus.

IV. RÉSULTATS ET DISCUSSION

4.1 Résultats

Cette section présente les résultats issus de l'analyse croisée des observations de classe, des entretiens semi-directifs, du questionnaire adressé aux élèves et de l'analyse documentaire. Conformément à l'approche qualitative adoptée (Miles et al., 2014), les données ont été organisées autour de catégories thématiques correspondant aux questions de recherche.

4.1.1 Fréquence et Modalités d'usage de l'Audiovisuel

L'analyse des observations révèle que l'audiovisuel est utilisé de manière irrégulière dans les classes de FLE. Sur les six séances observées avant l'intervention structurée, seules trois, soit 50 %, intégraient un support audiovisuel.

Les entretiens menés auprès des enseignants indiquent que ceux-ci recourent principalement à des vidéos issues de plateformes en ligne, à des chansons francophones ainsi qu'à des enregistrements de dialogues. Toutefois, cet usage demeure ponctuel et variable. Il dépend largement des équipements disponibles au sein de l'établissement, des initiatives personnelles des enseignants et du temps imparti au cours de français, ce qui limite la systématisation de l'intégration de l'audiovisuel dans les pratiques pédagogiques.

L'analyse des plans de leçon confirme que l'intégration de l'audiovisuel n'est pas systématiquement prévue ni planifiée dans les séquences pédagogiques.

4.1.2 Effets sur la Motivation et la Participation Orale

Les données recueillies par le questionnaire révèlent une perception majoritairement positive de l'audiovisuel chez les élèves : 80 % d'entre eux déclarent préférer les cours intégrant des supports audiovisuels, 73,3 % affirment se sentir plus motivés, 70 % estiment participer davantage aux activités orales et 66,7 % déclarent se sentir plus confiants pour s'exprimer en français.

Ces résultats sont corroborés par les observations de classe : lors des séances intégrant un support audiovisuel, le nombre d'interventions orales était plus élevé et les élèves apparaissaient plus engagés, notamment lors des activités de reformulation et de jeu de rôle. Les enseignants interrogés confirment également constater une participation plus active lorsque les supports audiovisuels sont utilisés comme déclencheurs pédagogiques.

4.1.3 Effets sur la Prononciation et la Fluidité

Les résultats indiquent que 63,3 % des élèves estiment que leur prononciation s'améliore grâce à l'écoute de documents audiovisuels, 60 % déclarent mieux comprendre l'intonation et le rythme du français, et 56,7 % affirment réutiliser certaines expressions entendues.

Les observations montrent que ces améliorations sont particulièrement visibles dans des situations guidées, immédiatement après le visionnage ou l'écoute du support, les élèves reproduisant plus aisément les expressions et adoptant une prononciation plus proche du modèle entendu. Toutefois, ces progrès semblent moins stabilisés lorsque les apprenants doivent produire un discours oral de manière autonome, sans appui immédiat.

4.1.4 Contraintes Matérielles et Institutionnelles

Les entretiens font ressortir plusieurs obstacles majeurs à l'intégration de l'audiovisuel dans l'enseignement du FLE. Les enseignants signalent une insuffisance d'équipements tels que projecteurs, ordinateurs et haut-parleurs, ainsi qu'une absence de ressources audiovisuelles intégrées aux manuels. Le manque de formation spécifique à l'exploitation pédagogique de l'audiovisuel et le volume horaire limité à trois périodes par semaine constituent également des contraintes importantes. Par ailleurs, le programme est jugé dense, ce qui conduit les enseignants à privilégier l'avancement du contenu au détriment d'activités interactives nécessitant davantage de temps. Ces contraintes expliquent en partie l'écart observé entre la perception positive des élèves et l'usage occasionnel de l'audiovisuel en classe.

4.1.5 Synthèse des Résultats

L'analyse croisée des données permet de dégager quatre constats principaux. Premièrement, l'audiovisuel est utilisé, mais de manière non systématique. Deuxièmement, son usage favorise la motivation et la participation orale des élèves. Troisièmement, il contribue à l'amélioration perçue de la prononciation et de la fluidité, surtout dans des situations guidées. Enfin, son intégration reste limitée par des contraintes matérielles, pédagogiques et institutionnelles. Ces résultats mettent en évidence un décalage entre le potentiel pédagogique reconnu de l'audiovisuel et son intégration effective dans les pratiques de classe.

4.2 Discussion

Cette section interprète les résultats à la lumière du cadre théorique mobilisé et des travaux antérieurs en didactique des langues, en psychologie de l'apprentissage et en intégration des TIC.

4.2.1 L'Audiovisuel Comme Soutien à la Compétence Communicative

Les résultats montrent que l'usage de l'audiovisuel favorise la participation orale et améliore certains aspects de la prononciation et de la fluidité. Ces constats s'inscrivent dans la perspective de la compétence communicative définie par Canale et Swain (1980), selon laquelle la maîtrise d'une langue implique non seulement des connaissances grammaticales, mais aussi des compétences discursives et stratégiques. L'exposition à des modèles audiovisuels authentiques permet aux apprenants d'observer l'usage contextualisé de la langue, ce qui favorise l'acquisition d'éléments prosodiques (intonation, rythme) et discursifs. Cette dynamique rejoint les orientations du Conseil de l'Europe (2003), qui place l'interaction et la production orale au cœur des activités langagières. Toutefois, les résultats indiquent que les progrès restent plus visibles dans des situations guidées que dans des productions autonomes. Cela suggère que l'audiovisuel constitue un support facilitateur, mais qu'il doit être intégré dans une progression didactique structurée pour favoriser une stabilisation durable des acquis.

4.2.2 Apports Cognitifs de la Multimodalité

Les améliorations perçues en compréhension et en prononciation peuvent être interprétées à la lumière de la théorie de l'apprentissage multimédia développée par Mayer (2001, 2014). Selon cette théorie, l'association des canaux visuel et auditif facilite le traitement cognitif de l'information et renforce la mémorisation. Les données recueillies confirment que la combinaison image-son permet aux apprenants de mieux associer les formes linguistiques à des contextes signifiants. Les résultats rejoignent également les travaux de Guichon (2012) et de Guichon & McLornan (2008), qui soulignent que la multimodalité peut soutenir la compréhension en langue seconde, à condition d'être exploitée dans un dispositif pédagogique cohérent. Cependant, l'étude montre que l'efficacité de l'audiovisuel dépend largement de la manière dont il est scénarisé. Une utilisation ponctuelle et non structurée limite son impact sur l'apprentissage à long terme.

4.2.3 Motivation et Engagement dans la Perspective de l'autodétermination

Le fort taux d'élèves déclarant une motivation accrue lors de l'usage de l'audiovisuel peut être interprété à la lumière de la théorie de l'autodétermination élaborée par Deci et Ryan (2000, 2013). L'audiovisuel semble contribuer à satisfaire plusieurs besoins fondamentaux : le besoin de compétence, en facilitant la compréhension et la reproduction de la langue ; le besoin d'autonomie, en rendant les activités plus dynamiques et interactives ; et le besoin d'appartenance, en favorisant les échanges entre pairs lors des activités de groupe.

Ces résultats corroborent également les analyses de Dörnyei (2001), qui souligne l'importance des stratégies motivationnelles dans la participation orale. L'environnement d'apprentissage enrichi par des supports audiovisuels semble réduire l'anxiété et encourager la prise de parole. Toutefois, l'effet motivationnel observé reste dépendant de la fréquence d'intégration de ces supports, une utilisation occasionnelle limitant la consolidation de cette dynamique positive.

4.2.4 L'Écart entre Potentiel Pédagogique et Contraintes Institutionnelles

L'un des résultats majeurs de l'étude est le décalage entre le potentiel reconnu de l'audiovisuel et son intégration effective.

Ce constat rejoint les analyses de Narcy-Combes (2005), qui insiste sur le fait que l'efficacité des TIC dépend d'une intégration réfléchie et contextualisée. De même, Guichon (2012) souligne que les contraintes matérielles et institutionnelles constituent des freins majeurs à l'innovation pédagogique.

Dans le contexte rwandais, les travaux de Rosendal et Amini Ngabonziza (2023) montrent que les dynamiques linguistiques et institutionnelles influencent les pratiques éducatives. Les contraintes relevées (équipements limités, programme dense, volume horaire restreint) illustrent l'importance du contexte dans l'intégration des TIC.

Ainsi, l'efficacité de l'audiovisuel ne dépend pas uniquement de ses qualités intrinsèques, mais des conditions structurelles de sa mise en œuvre.

4.2.5 Implications Pédagogiques

Les résultats suggèrent que l'audiovisuel peut constituer un levier pertinent pour le développement de l'expression orale en FLE, à condition qu'il soit intégré de manière systématique dans les séquences pédagogiques, accompagné d'activités favorisant la production autonome, inscrit dans une progression didactique cohérente et soutenu par un appui institutionnel adéquat. L'étude souligne ainsi la nécessité d'articuler innovation technologique,

formation des enseignants et adaptation curriculaire pour tirer pleinement parti du potentiel pédagogique des supports audiovisuels.

V. CONCLUSION & RECOMMANDATIONS

5.1 Conclusion

Cette étude avait pour objectif d'analyser dans quelle mesure l'audiovisuel peut contribuer à l'amélioration de l'expression orale en français langue étrangère (FLE), à partir d'une étude de cas menée au Groupe scolaire Rutunga. Les résultats obtenus à partir des observations de classe, des entretiens avec les enseignants et du questionnaire administré aux apprenants mettent en évidence le rôle positif des supports audiovisuels dans le processus d'apprentissage. Les données recueillies montrent que l'audiovisuel favorise la motivation des apprenants, stimule leur participation aux activités orales et contribue à une amélioration perceptible de la prononciation, de l'intonation et de la confiance en soi. Les élèves exposés à des supports audiovisuels manifestent davantage d'intérêt pour les activités d'expression orale et participent plus activement aux interactions en classe. Ces résultats confirment les apports théoriques de l'apprentissage multimodal et de la théorie de l'autodétermination, qui soulignent respectivement l'importance de la multimodalité dans le traitement cognitif de l'information et le rôle central de la motivation dans l'engagement des apprenants.

Cependant, l'étude révèle également que l'intégration de l'audiovisuel dans les pratiques pédagogiques demeure irrégulière et dépend largement des conditions matérielles et organisationnelles. L'insuffisance d'équipements, le manque de formation spécifique des enseignants et le temps limité accordé au cours de français constituent des obstacles majeurs à une utilisation systématique de ces supports. Ainsi, malgré son potentiel pédagogique reconnu, l'audiovisuel reste encore sous-exploité dans le contexte étudié. En définitive, l'audiovisuel apparaît comme un levier pertinent pour améliorer l'expression orale en FLE, à condition que son intégration soit soutenue par des politiques éducatives cohérentes, une formation adaptée des enseignants et une amélioration des ressources matérielles. Une exploitation régulière et structurée des supports audiovisuels pourrait contribuer de manière significative au développement de la compétence orale des apprenants rwandais. Cette étude, limitée à un seul établissement et à un échantillon restreint, ne permet pas de généraliser les résultats à l'ensemble du système éducatif. Toutefois, elle ouvre des perspectives pour des recherches ultérieures portant sur des échantillons plus larges, des approches comparatives entre établissements et des études expérimentales visant à mesurer l'impact de l'audiovisuel sur le long terme.

5.2 Recommandations

À partir des résultats obtenus et des analyses développées dans cette étude, plusieurs recommandations peuvent être formulées afin d'améliorer l'intégration pédagogique de l'audiovisuel dans l'enseignement du français langue étrangère (FLE), en particulier pour le développement de l'expression orale dans le contexte des écoles secondaires rwandaises. Les résultats montrent que l'audiovisuel favorise la motivation et la participation orale des apprenants, mais que ses effets restent surtout visibles dans des situations guidées. Il est donc recommandé : d'intégrer l'audiovisuel de manière systématique dans les séquences d'enseignement de l'expression orale, et non de façon ponctuelle ; d'accompagner les supports audiovisuels d'activités progressives allant de la compréhension guidée vers la production orale autonome (reformulation, jeux de rôle, débats, simulations) ; de concevoir des scénarios pédagogiques alignés sur les principes de la compétence communicative définis par Michael Canale et Merrill Swain, ainsi que sur la perspective actionnelle promue par le Conseil de l'Europe. Une telle approche permettrait de renforcer la stabilisation des acquis oraux au-delà des activités immédiates.

L'étude a mis en évidence que l'usage de l'audiovisuel dépend largement des initiatives individuelles des enseignants et que ces derniers manquent parfois de formation spécifique. Il est donc recommandé : d'intégrer des modules sur l'exploitation pédagogique de l'audiovisuel dans la formation initiale des enseignants de FLE ; d'organiser des formations continues centrées sur la scénarisation pédagogique des supports multimodaux ; de sensibiliser les enseignants aux principes de l'intégration raisonnée des TIC, tels que développés par Jean-Paul Narcy-Combes, afin d'éviter un usage uniquement illustratif des technologies. Une meilleure maîtrise didactique de l'audiovisuel permettrait d'en exploiter pleinement le potentiel cognitif et communicatif.

Les contraintes matérielles et organisationnelles identifiées constituent un frein majeur à l'intégration de l'audiovisuel. À ce titre, il est recommandé : d'améliorer l'équipement des établissements scolaires en matériel audiovisuel de base (projecteurs, haut-parleurs, ordinateurs) ; de prévoir un système de maintenance des équipements existants ; d'intégrer explicitement l'usage de l'audiovisuel dans les orientations curriculaires et les documents pédagogiques officiels. Conformément aux analyses de Nicolas Guichon, l'efficacité des TIC dépend de leur inscription dans un cadre institutionnel clair et soutenu.

Les résultats montrent que l’audiovisuel contribue à renforcer la motivation et la confiance en soi des apprenants à l’oral. Il est donc recommandé : de privilégier des supports audiovisuels engageants et proches des centres d’intérêt des élèves ; de favoriser des activités collaboratives à partir de ces supports, afin de renforcer le sentiment d’appartenance au groupe ; de créer un climat de classe sécurisant, réduisant l’anxiété liée à la prise de parole. Ces recommandations s’inscrivent dans la perspective de la théorie de l’autodétermination développée par Edward L. Deci et Richard M. Ryan, ainsi que dans les travaux de Zoltán Dörnyei sur la motivation en classe de langue. Compte tenu des limites de cette étude, il est recommandé : de mener des recherches similaires dans d’autres établissements afin de comparer les pratiques et les contextes ; de réaliser des études longitudinales pour observer les effets de l’audiovisuel sur le développement de l’expression orale à long terme ; d’explorer des dispositifs expérimentaux combinant audiovisuel et tâches actionnelles afin de mesurer plus précisément leur impact sur l’autonomie orale des apprenants.

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Reconceptualising operational viability in education-focused non-governmental organisations (NGOs): A theoretical and empirical analysis from Zambia

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ABSTRACT

Operational viability is viewed as an important factor in the performance and sustainability of education-orientated non-governmental organisations (NGOs) in low-income settings but is poorly theorised and under-investigated in practice. Based on evidence of mixed-methods in the case of Zambia, this article redefines operational viability as an emergent, relational and system-based capability and not a consequence of administrative efficiency per se. The research employed a convergent mixed-method design by analysing the data collected from a total of 222 participants (comprising 120 NGO employees and 102 Ministry of Education employees) in six education-orientated NGOs selected using purposive sampling. Exploratory factor analysis and multiple regression were used to analyse quantitative data, whereas thematic analysis was applied to qualitative interviews to identify the organisational and institutional processes that influence the delivery of programmes. The analysis is presented in the context of organisational resilience theory, institutional theory and systems thinking through the interaction of internal capacity, institutional alignment and systemic coherence to determine the viability of operations. The results show that the NGOs have comparably high internal governance, staffing, and performance management systems, but the operational viability is limited by the misalignment with the government planning processes, the implementation logics in line with donor-specified strategic incentives, and more comprehensive systemic resource bottlenecks. Such limitations reduce the possibilities for scalability, continuity, and long-term integration of NGO-supported programmes within national education systems. The study concludes that operational viability is not primarily a function of internal managerial competence but a governance condition shaped at the organisational-institutional interface. Programme sustainability depends on early co-design between NGOs and government actors, synchronisation of project cycles with public planning horizons, coordinated reporting and accountability systems, and institutionalised learning processes that extend beyond donor compliance. The article contributes to project and programme management scholarship by redefining operational viability as a system-level governance capability that enables programme continuity, scaling, and institutional integration in resource-constrained education systems.

Keywords: Education Non-Governmental Organisation, Operational Viability, Viability, Zambia

I. INTRODUCTION

Education-oriented non-governmental organisations (NGOs) have been the key players in designing and providing pedagogical support, foundational learning interventions, and system-strengthening works in Sub-Saharan Africa (Nomsenge, 2019; Brophy, 2020; Okine, 2022; Chisom et al., 2024). These interventions are usually introduced in the form of time-limited, donor-funded programmes, which are similar to portfolios of interdependent projects which operate alongside and within national education systems. Although the role played by NGOs in service delivery and innovation is now a well-known phenomenon, much less has been given to the circumstances under which such project-based interventions can be sustained as a working process even beyond individual funding cycles. A significant part of the existing studies on NGOs in education has revolved around financial sustainability, reliance on donors, and the outcomes of the programme (Choto et al., 2022; Tugyetwena, 2023). Such views, however, tend to have a narrow conceptualisation of viability, viewing it as administrative effectiveness or resource mobilisation without giving much importance to the organisational, institutional and systemic interactions that influence programme continuity and integration. This leads to the inability of education projects with high internal management to scale or adjust to government systems or maintain gains once external funding is stopped.

In this regard, the idea of operational viability goes beyond financial or technical competency. It can be described as the ability of an organisation to transform resources into resources through coherent and well-coordinated and institutionally aligned programme delivery in complex resource-constrained systems (Caratozzolo et al., 2024; Kurti

& Salavati, 2024; Lechler et al., 2022; Weaver et al., 2021). In the case of project-based organisations like education NGOs, project continuity, adaptive capacity and long-term institutionalising programme outcomes are directly determined by operational viability. What low-income education systems have indicated is that project challenges are hardly ever technical in nature. Rather, they are imbued into more general institutional and systemic processes, such as miscongruent planning processes, fractured governance structures, and donor-funded implementation rationales (Mtika & Sosu, 2025). In Zambia, fiscal pressures, development cooperation trends and poor coordination between non-state and state actors affect the viability of education-oriented non-governmental organisations similarly (Chrine et al., 2020; Kachumi et al., 2025; Volmink et al., 2017). These circumstances provide conditions where technically well-managed programmes can hardly have continuity, coherence and system integration. The article attempts to fill in a gap in the literature by reconceptualising operational viability as an emergent, relational, system-based capability. The paper builds on convergent mixed methods research on education-centered non-governmental organisations working in Zambia and uses the theory of organisational resilience, institutional theory, and systems thinking to question the relationships between organisational capability, institutional alignment, and systemic coherence in influencing the sustainability of the programmes.

The article proposes two main arguments: firstly, that operational viability needs not to be understood as an essential managerial feature but as a form of governance which is realised on the border between civil society organisations and state systems. Second, regardless of technical accuracy of execution, sustainability outcomes of project based educational interventions do not rely as much on the accuracy of technical execution but rather on cross-level harmonization of project cycles, institutional planning processes, and system-wide coordination mechanisms. Reconstructing operational viability as a relational governance construct, as opposed to an internal performance measure, this research study adds to the academic discussion on project and programme management and provides policy-relevant information on how to improve the sustainability of donor-funded education interventions in complex adaptive systems.

1.1 Research Questions

- i. What constitutes operational viability in education-focused NGOs?
- ii. How do organisational capability, institutional alignment, and systemic coherence interact to shape operational viability?
- iii. How does operational viability influence programme sustainability and system integration?
- iv. What governance and systemic conditions constrain or enable operational viability in Zambia?

II. LITERATURE REVIEW

2.1 Theoretical Review

Operational viability in education-oriented non-governmental organisations (NGOs) is a multi-dimensional concept that cannot be sufficiently described with the help of one theoretical approach. NGOs are mainly project-based organisations, whereby they put in place time-limited, donor-funded programmes within the existing permanent government systems. Consequently, they are not only functionally determined by the inner organisational capacity, but also by the level of institutional accordance and system dynamics. To account for this complexity, the work combines the organisational resilience theory, the institutional theory, and the systems thinking that is based on the complex adaptive systems. Instead of considering these theories as a parallel exposition, the framework places them as a complementary lens, which is used to clarify different but intersecting aspects in various failure modes that influence the sustainability, project continuity, and scalability.

2.1.1 Organisational Resilience Theory: Adaptation Programmes to Shocks in Funding

The organisation resilience theory describes how organisations expect, absorb, adapt, and recover following any form of disruption in organisations, like fluctuations in funding, change of policies, and uncertainty in operations (Sinha & Ola, 2021; Vakilzadeh & Haase, 2020; Quendler, 2017). Resilience within a project-based environment takes the form of adaptive planning, flexible staffing, learning and responsive leadership, which allow programmes to survive external shocks. In the context of education-related NGOs, the resilience theory can be used to understand how organisations continue to deliver programmes when their donor funding is postponed, decreased, or redesigned. Resilience is related to leadership adaptiveness, organisational learning, and cross-functional coordination (Rydzewski, 2024; Coleman and ADIM, 2019). The capacities enable NGOs to reset the project activities, redistribute resources, and keep the implementation momentum going despite constraints.

Nevertheless, there is also a major limitation of resilience theory. Adaptive responses can be coping mechanisms and not institutionalised capabilities. Although these practices will aid in short-term continuity of the projects, they may not be translated into long-term programme integration or continuity. In project management terms, resilience describes

how projects withstand funding shocks, though not why programmes with good management still fail to scale and entrench into the state machinery. This restriction brings about the need to involve the institutional theory.

2.1.2 Institutional Theory: Divergent Planning, Reporting and Governance Systems

According to the institutional theory, organisational behaviour is determined by regulatory, normative, and cultural environments that provide legitimacy and resource accessibility (Fagbemi et al., 2025; Tugyetwena, 2023). In the case of project-based NGOs in education systems, the viability of the NGO is largely reliant on its alignment with the government planning cycles, reporting systems, and accountability systems. A second mode of failure is explained using this lens: the failure of NGO governance of the project and the institutional systems of the public sector to align. NGOs tend to work in line with donor-based rationales that focus on brief funding cycles, upward accountability and parallel reporting needs. In comparison, government institutions operate with a higher planning horizon, bureaucracy and legal mechanisms of accountability. At the point of divergence of these logics, the projects can be technically successful but poorly fitted into the national systems.

The institutional theory, therefore, is useful in explaining why programmes with high internal capacity have been constrained in terms of sustainability due to a lack of coherence in the coordination amongst their planning and poor ownership. NGOs have to find a way around their conflicting institutional requirements amid the donors, ministries, and communities (Fagbemi et al., 2025), usually without harmonising their governance structures. Although resilience theory describes the adaptation in projects, the institutional theory exposes the limited viability of projects in the face of misaligned governance environments, no matter how competent the organisations are. However, institutional theory is not sufficient to explain unplanned interrelations between several actors and multiple projects that are functioning concurrently within the education system. Systems thinking bridges this gap. All this suggests that there is a structural coordination breakdown at the interface between short-term project cycles and long-term permanent government planning systems, and not unwillingness or lack of communication between actors.

2.1.3 Systems Thinking, Complex Adaptive Systems: Parallel Project Unintended Consequences

The conceptualisation of education systems based on systems thinking is that they are complex adaptive systems that have interdependence, are non-linear, include feedback loops, and are emergent (Fowler & Mati, 2019; Nelles et al., 2021; Phillips and Ritala, 2019). Such systems have interaction of individual projects with each other and with the institutional structures in a way that can lead to unintended consequences.

Based on this view, another failure mode is formed: the disintegration and ineffectiveness of parallel project implementation. Although individual NGOs may be resilient, and their action adheres to the institutional rules, the aggregate impact of numerous uncoordinated projects can strain the government's capacity and create distortive incentives and system dysfunction (Clerkin and Quinn, 2018; Dass et al., 2020). Reporting systems that operate in parallel, conflict with each other, or have overlapping interventions may cause short-term benefits at the expense of long-term system operation. Systems thinking is why interventions that are effective at the project level do not give sustainable system-level results. It emphasizes the constraints of project optimization separately and the significance of coordination, feedback and learning throughout the programme portfolio. This viewpoint is consistent with the assumption that sustainability issues are usually structural bottlenecks rather than organisational failures (Fredriksen, 2023; Spivack, 2021).

2.1.4 Integrated Framework of Operational Viability

On the whole, these three theoretical approaches offer a consistent description of the viability of operations in interventions based on project-based teaching. The organisational resilience theory is the adaptation of programmes to funding and operational shocks by NGOs (Lechler et al., 2022). The institutional theory exposes the limitations of project continuity and ownership due to misaligned governance structures (Hamda & Kebede, 2021). Systems thinking reveals the unintended system-level outcomes of parallel projects, which destroy sustainability (Ndombi et al., 2020).

With the combination of these lenses, the concept of operational viability is transformed as an emergent, relational and system-embedded capability. It is neither an attribute of single projects or organisations, but a state that emerges between project capabilities, institutional arrangements and system dynamics (Midgley & Lindhult, 2021). This combined framework enhances project and programme management scholarship in a way that redirects the focus on project implementation to the governance and coordination processes that are necessary to maintain programme delivery in complex education systems (Fredriksen, 2023).

2.2 Empirical Review

2.2.1 Operational Viability in Education-Focused NGOs

Operational viability has been investigated by empirical scholarship, using resource dependence, organisational adaptation, and sustainability outcomes. Resource Dependence Theory assumes that organisations must gain access to vital external resources and that asymmetric power relations influence the governance and strategy (Pfeffer and Salancik, 1978). In donor-based NGOs of education, viability thus connects to financial solvency, but to the extent that it is strategic autonomy in funding logics forced upon them by external demands.

Later studies prove that dependency pressures are addressed through reorganisation of governance structures and network relationships within organisations (Hillman et al., 2009). Adaptive governance then comes to the forefront of maintaining operations in volatility. The anticipatory resilience studies offer leaders flexibility, strategic alignment, and organisational culture as predictors of a nonprofit continuity (Singh et al., 2022). These conclusions indicate that operational stability depends on the internal capability, especially on governance routines and adaptive leadership. An equivalent body of literature focuses on the importance of institutionalisation as a sustainability indicator. According to the Perlman Robinson et al., (2021), the concept of durability is the formal integration of programmes into state systems. In this light, operational viability embraces not only managerial ability but also institutional absorption capacity. Together, these studies imply that the concept of operational viability incorporates the management of resources, adaptive governance, and institutional embedding. Nevertheless, there is still a fragmentation of the literature. The internal capability, external alignment, and system integration are discussed independently of each other, and the integration is not conceptualised as one. The relationship between these dimensions is still under-theorised, especially in aid-prone education systems.

2.2.2 Organisational Capability, Institutional Alignment, and Systemic Coherence

Even though the issue of organisational capability is often studied, its interplay with institutional settings is less systematically addressed. As Elbers and Arts (2011) show, the reorganization of the internal processes under conditions of the donors means that the capability as such is determined by the pressures of an institution. Equally, Arhin et al. (2018) demonstrate that credibility-building and strategic partnerships are the strategies which NGOs use to reduce the instability of funding. The implication of these studies is that capability is operationalised in terms of alignment processes and not in terms of existing outside of them. At the interface between the state and the non-governmental organizations, Makuwa (2004) observes that coordination failures and policy ambiguity are obstructions to effective collaboration in education sectors. Coherence of program then is limited by institutional misalignment despite the firm internal systems. Ostrom (2019) supports this point and notes that sustainability lies in institutionalizing practices in formal governance schemes. However, despite these observations, the interaction between internal capability, institutional fit, and system-level coordination is hardly ever modelled in the empirical research. Research usually separates one of the dimensions; capability, partnership or institutionalisation without investigating how misalignment at the levels creates fragmentation. The relationship dynamics that connect the project execution to system integration are thus not well defined.

2.2.3 Operational Viability's Influence on Programme Sustainability and System Integration

The connection between programme sustainability and operational structures is becoming recognised but conceptually loosely defined. Dadu et al. (2024) discover that sustainability is more predicted by relational governance (especially donor relationship management) than by diversifying funding. Gul and Morandé (2023) warn not to give blanket sustainability prescriptions, as the outcomes are dependent on contextual conditions of governance. The participatory development scholarship also associates permanency with ownership by local people and embedding (McLean et al., 2019). The institutionalisation frameworks focus on formal incorporation into the public systems as the foundation of long-term persistence (Perlman Robinson et al., 2021). Although these studies find correlates of sustainability, they fail to theorise sustainability as a process of operational viability. The cause and effect relationships that exist between internal capability, institutional alignment and systemic coherence and programme continuity are poorly developed. Sustainability is being discussed as an outcome variable but does not explain the conditions of cross-level governance that facilitate it.

2.2.4 Governance and Systemic Conditions: A Constraint or Enabler of Operational Viability in Zambia

Conditions of contextual governance is critical in the determination of the NGO activity. The policy uncertainties and lack of coordination in the Southern African education systems are illuminated by Makuwa (2004). Arhin et al. (2018) show that funding volatility restructures the organisational behaviour in aid-dependent settings. Gul and Morandale (2023) also state that the strategies of sustainability cannot and should not be universal. All these studies indicate that the continuity in operations is facilitated by the existence of clarity in governance and fiscal stability, coordination mechanisms and institutional coherence. However, the interaction of these systemic constraints with

organisational capability in Zambia education sector is poorly researched. The interrelationship between donor schedules, state planning, and system-level capacity has not been represented as a coherent explanatory system.

In the literature, the concept of operational viability is implied and seldom conceptualised. The question of internal capability, institutional alignment, sustainability, and systemic context is looked into separately. The only dimension that has not been theorised adequately is the interaction of these dimensions to influence programme continuity and institutional integration. The gap is especially acute in the education systems that are marked by the dependence of donors and disjointed governance. The presentation of operational viability as a relational construct that is a product of the interplay between organisational capability, institutional alignment, and systemic coherence assists in moving beyond the determination of isolated determinants and the development of a multi-level governance account of sustainability.

III. METHODOLOGY

3.1 Research Design and Rationale

The research design that was used in this study is convergent parallel mixed-methods research (Cresswell, 2021), in order to explore the operational viability as a multidimensional concept that is organisational, institutional and at the same time systemic. The combination of quantitative measures and qualitative narration was necessary since operational feasibility can never be sufficiently estimated using quantitative or qualitative measures (Nevedal et al., 2024; Trischler, 2022). Although it is possible to measure and validate underlying dimensions of viability across organisations using survey data, qualitative evidence is needed to understand how these dimensions interact in practice, where NGO programmes and donor requirements meet government systems (Elbers & Arts, 2011; Knowles, 2023; Meijis & Koolen-Maas, 2022). This design, in turn, allowed the study to combine measurement and explanation as research on project and programme management studies has urged to study complex governance phenomena at various levels of analysis.

The mixed-method design is based on the analytical framework, which was created in the doctoral thesis of the author, who determined that financial resilience, operational viability, and sustainability are separate but interconnected constructs that need empirical confirmation and interpretation in a context. The data collection was carried out in parallel with quantitative and qualitative data using 222 respondents, and these data were independently analysed and combined during the interpretation efforts to attain analytical complementarity, and not methodological triangulation alone.

3.2 Unit of Analysis

The organisational-institutional interface in which education programmes are made and delivered is the major unit of analysis in the present study, instead of the NGO or the individual project itself (Menashy & Zakharia, 2022; Reinish, 2020; Silberstein and Spivack, 2023). Data were empirically gathered at both the organisational (NGO internal systems and practices) and institutional (Ministry of Education planning, coordination and oversight) levels. Operationally, the conceptualisation of analytical viability, however, is developed because of interactions between these levels.

It is this framing that shows how education NGOs are project-based, with the programmes being deployed using time-limited projects within permanent public sector systems (Cabrita et al., 2021; Colenso and Hai, 2024; Silberstein and Spivack, 2023; Spivack, 2021). Operational viability is then not considered as being a property of the individual project or organisations in isolation, but rather a relational capability that is influenced by organisational capacity, institutional alignment and systemic constraints. This method is aligned with the conceptual model of the thesis that places viability as a system-embedded state that determines programme continuity and integration.

3.3 Quantitative Analysis and Construct validation

The exploratory factor analysis (EFA) and multiple regressions were used to analyse quantitative data in order to prove the structure and explanatory power of the operational viability as a latent construct (Capinding, 2024; Ruel et al. 2021). EFA was utilised as a theory-driven procedure to establish and validate the dimensionality of operational viability using the indicators formed on the basis of the conceptual framework created in the thesis. By using this method, the study was able to test empirically whether governance, staffing, monitoring, coordination and systems-related items grouped into coherent dimensions were in line with the theorized construct.

After construct validation, a regression analysis was applied to the hypotheses on the explanatory relationship between the results of operational viability and programme sustainability. As per the thesis, regression modelling was used to test the hypothesis on whether operational viability adds significance to sustainability when the relevant organisational issues are taken care of, which adds to the causal inference at the construct level as opposed to predicting the performance of each particular project. These analyses argue the theoretical statement of the study that viability is an enabling condition of programme continuity and not an outcome.

3.4 Qualitative Analysis and Explanatory Depth

Qualitative information collected through the interviews with key informants was analysed using a thematic analysis in order to explain the experiential and negotiated aspects of operational viability in the field (Loblay et al., 2021; Mubangizi & Adekanla, 2024). The thematic scope included the coordination processes, alignment of the planning activities, relations between the donors and governmental bodies, and adaptive strategies implemented in case of systemic constraints. The qualitative knowledge was then used to understand and put the quantitative trends into context, especially in circumstances where strong internal organisational capacity co-varied with weak programme integration or sustainability. This explanatory factor was crucial in identifying institutional misalignment and system-level bottlenecks that can never be seen by data available through surveys alone.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Operational Viability in Education-Focused NGOs

The results indicate that operational viability is a multidimensional construct comprising organisational project capability, institutional alignment, and systemic coherence. Quantitative data indicate that NGOs have strong internal project capabilities. The mean of the Operational Viability Index was high ($M=4.00$, $SD=0.96$), indicating that governance structures, staffing strategies, and internal control systems are generally institutionalised across organisations. Table 1 shows that the organisational project capability and systemic coherence have mean scores that are relatively high, but the institutional alignment has a lower mean, indicating a possible barrier to programme integration despite the existence of a high internal capacity.

Table 1

Descriptive Statistics for Operational Viability Dimensions

Dimension	Mean	SD
Organisational Project Capability	4	0.96
Institutional Alignment	3.8	1
Systemic Coherence	4.16	0.85

The presence of governance structures, competent technical staff, and efficient monitoring and evaluation systems, corroborated by qualitative evidence, supports the existence of clear governance structures, skilled technical staff, and functional monitoring and evaluation systems. The respondents explained that there were clearly defined reporting lines, regular performance monitoring, and internal accountability systems through which projects are delivered. These attributes are good examples of project execution capacity, and these are in line with resilience-oriented practices that facilitate programme delivery under limited conditions.

However, the qualitative data also revealed the gaps in capabilities that undermine continuity between project cycles. These loopholes involve the reliance on short-term project-based staff, a lack of succession planning and turnover of external consultants to supply technical functions. These types of arrangements erode institutional memory and reduce the ability of the organisation to sustain programme momentum at times of funding changes. Internal systems, therefore, may help execute the project, but are characterised by low effectiveness in ensuring continuity of the programme longer than funding cycles. The evidence supports the fact that operational viability does not only entail financial prudence but also governance systems, staffing systems, surveillance capabilities, and consistency of relations with the state institutions.

4.1.2 Organisational Capability, Institutional Alignment, and Systemic Coherence

Though internal project strength is strongly evident, there is an issue of institutional fit that emerges as a major limitation to operational feasibility. Quantitative indicators are an indication of a moderate conformity to systems of government, but qualitative results indicate continued coordination failure between NGO project portfolios and the planning and reporting systems of Ministries of Education. According to the respondents in the ministry, it is always noted that NGOs involve the government actors in the project cycle when they are already late, when the funding has already been secured, and the project designs are already made. As one respondent noted:

“They want to develop the proposals on their own and once they are approved, that’s when they engage us, and they complain when we don’t fully own the programme.” (Key Informant, 1 October 2025)

From the Ministry’s perspective, this late-stage engagement limits alignment with national priorities, weakens ownership, and complicates integration into annual and medium-term planning cycles. Another respondent highlighted the importance of early co-design:

“If only we could start together, develop together, it would be easier.” (Key Informant, 18 September 2025)

However, there was a different limitation as expressed by NGO respondents. Although they recognized the importance of alignment, they indicated that they lacked clear, harmonized, and actionable priority frameworks that could be used to drive project design. NGOs explained that they depended on secondary sources of data, like Education Statistical Bulletins, to draw conclusions on what to do, instead of depending on multi-year plans developed with the joint articulation. One respondent explained:

“The ministry does not avail us with any key priorities they may have, so we base our projects on the prevailing challenges we see.” (Key Informant, 25 September 2025)

This tension is not associated with the collapse of communication, but a failure of coordination based on a lack of alignment between planning horizons, decision-making authority and accountability structures. NGOs work in the cycles of donor-funded projects that have a strict schedule and performance standards, and government systems work in the extended planning and bureaucratic procedures. Without common coordination mechanisms, such a reliance results in parallel planning, fragmented reporting structures and poor integration of programmes. Table 2 combines the quantitative trend with the qualitative data, demonstrating the presence of a strong internal project ability along with institutional and systemic losses of continuity of programmes.

Table 2

Integrated Evidence on Operational Viability Across Project Cycles

Dimension	Quantitative Pattern	Qualitative Evidence	Project Management Implication
Organisational Project Capability	High mean scores on governance, staffing, and M&E	Strong internal controls, but reliance on project-funded staff	Strong execution, weak cross-cycle continuity
Institutional Alignment	Moderate scores; high variance	Late government engagement; unclear priorities	Coordination failure across planning cycles
Systemic Coherence	High internal systems, low external synchronization	Parallel reporting, competing timelines	Fragmentation across project portfolios

The late entry of governments, poor planning cycles and disjointed reporting lines creates structural friction between the NGOs and the Ministry of Education. The observed pattern of interaction can be summed up as the existence of high organisational capability and low institutional alignment, which led to the lack of system-embedding execution strength. Besides, strong internal control and fragmented governance dynamics generate fragmentation at portfolio levels. Operational viability thus becomes not a linear expression of internal capacity but a relational expression that is formed out of cross-level relationships.

4.1.3 Operational Viability, Programme Sustainability and System Integration

In the regression model, organisational capability, institutional alignment, and systemic coherence functioned as independent variables, while programme sustainability served as the dependent variable. The results indicate that excellent internal governance is not a sufficient factor in ensuring sustainability. NGOs have high performance in funding rounds; however, project-based staffing, ineffective succession plans, parallel reporting, and inappropriate alignment of planning horizons all lead to poor programme continuity. The patterns uphold the difference between the short-term project resilience and the long-term structural sustainability.

The evidence undermines project-based management presuppositions, resembling sustainability criticisms that the fidelity of implementation is the same as institutionalisation. Operational viability only plays a role in sustainability when systemic organisational structures are coordinated with governance cycles and enclosed in national planning cycles. In this way, sustainability becomes a conditional derivation of the viability of operations, but only when viability is directed to institutional congruence and systemic consistency.

4.1.4 Governance, Systemic Conditions and Operational Viability in Zambia

These data demonstrate structural limitations on the ecosystem level, donor-driven timeframes, infrastructure restrictions, geographic distribution, ICT limitations and disparities between the capacity of districts. These situations raise the marginal delivery costs and limit scalability, even in the case of sound financial stewardship. More specifically, the findings indicate that overall systemic constraints that impact the ecosystem of the entire education system affect the viability of operations.

The quantitative outcomes of internal control and information systems are relatively high ($M=4.16$, $SD=.85$), which means that NGOs have believable monitoring, procurement and reporting systems on the organisational level. However, these strengths do not entirely initiate system-level coherence. Qualitative data also determine donor-led implementation schedules, failing district-level resources, uneven sub-national capacity, and staffing within the Ministry

of Education to be stable, limiting elements to coherent implementation. These factors hamper the capacity of the NGOs to synchronise the project schedules related to government planning cycles and implement the programmes across the districts in a similar way. According to the respondents, parallel reporting necessitates competing schedules generated by the various NGOs working on the same system, usually demanding different donor demands, which overburdens the government. Even projects that are well run do lead to fragmentation in case there are poor coordination mechanisms among programmes. System-level results are therefore linked to the performance of many poorly correlated project cycles but not to the performance of the interventions.

These outcomes further suggest that structural circumstances limit the viability of operations, which cannot be controlled by an individual organisation or project team. Programme sustainability is therefore not only a matter of internal efficiency, but also the uniformity of governance, coordination and resource movement throughout the education system. Overall, the qualitative matrix prepared with the aid of the analysis in Figure 1 shows how the concept of operational viability is displayed at the edge of organisational project systems, institutional governance system arrangements, and system-level constraints.

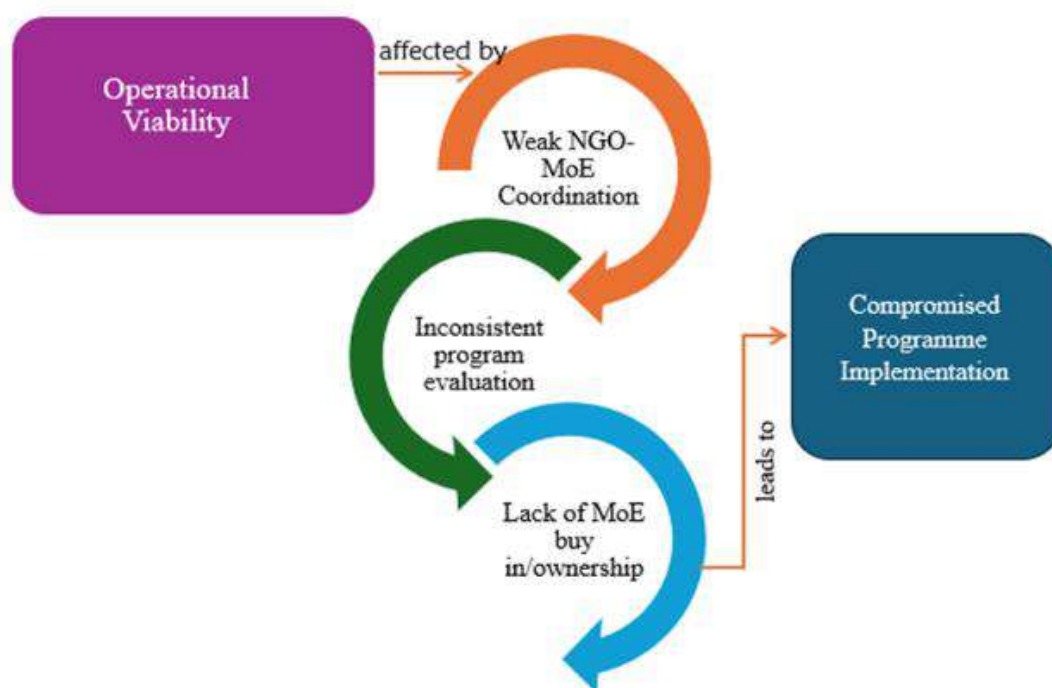


Figure 1
Operational Viability at Organisational-Institutional Interface

4.2 Discussion

4.2.1 Operational Viability as Governance Alignment Rather Than Managerial Strength

The results indicate that high internal capability does not necessarily translate into sustainability. In this research, NGOs had organised systems of governance, an official system of reporting, and technical proficiency in staffing. However, programme continuity was limited due to incompatibility with government planning cycles and donor-imposed schedules. This is a challenge to managerialist beliefs about project management, which identifies execution fidelity with long-term effect. The most conclusive explanation of this is in the institutional theory. According to research, sustainability does not only rely on performance but also on the alignment with current governance forms and political will (Donessouné et al., 2023; Ostrom, 2019). The structural constraint of institutional embedding is experienced when the cycles of NGO project operations are not in touch with state planning horizons (Bano & Oberoi, 2020). The notion of operational viability thus becomes not a feature of internal competence, but a performance of institutional congruence, which re-defines sustainability as a governance performance, as opposed to a technical performance (Choto et al., 2022).

4.2.2 Adaptation without Embedding: The Limits of Resilience

The paper also identifies the difference between short-term resilience and structural viability. Flexible staffing, internal controls, and responsive leadership were among the approaches that NGOs showed to adaptive responses to funding volatility. These results are consistent with Singh et al. (2022) and other organisational resilience literature, which focuses on adaptation in an uncertain environment (Țiclău et al., 2021; Witmer & Mellinger, 2016). Adaptive capacity on its own, though, would not guarantee system integration. Resilience in several instances served as a coping strategy rather than a pathway to institutionalisation. Pryce (2021) was of the view that adaptive resilience, in particular, was an important coping mechanism to change; this makes projects survive shocks but remain externally anchored. This distinction clarifies a theoretical boundary: resilience explains continuity under disruption but not embedding within formal governance systems. Operational viability, hence, does not just consist of adaptive capacity; it consists of alignment that transforms adaptation into institutional absorption.

4.2.3 Fragmentation as a System-Level Constraint

Other than the organisational and institutional dynamics, the results show systemic fragmentation as a constraint. The cumulative coordination burdens at the ministry level occurred due to parallel reporting organisations, donor-specific timelines, and overlapping intervention findings in tandem with (Mundy et al., 2010), which revealed that the lack of coordination among organisations posed a threat to programme continuity. Even the projects that were well-controlled added to the portfolio inefficiency. The explanatory leverage here is offered by systems thinking. In that light, findings of Phillips and Ritala (2019) conclude that project-level optimisation in complex adaptive systems is not a sure way of finding system-level coherence. Sustainability, therefore, does not occur as individual project performance; instead, viability is constrained by system-level feedback loops and capacity constraints that organisations cannot unilaterally address, and the analytical interest then moves away from single-organisation reform to cross-actor coordination processes (Struben & Kapmeier, 2023; Singh et al., 2022; Weaver et al., 2021).

4.2.4 Relational Governance as the Core Mechanism of Sustainability

This relationship between capability, alignment and systemic coherence shows a relational process behind sustainability (Marques & Martins, 2025). A combination of diversification strategies alone, relative to more relational governance, which includes structured engagement between NGOs and ministries, was more impressive than empirical evidence that backs relationship management and predicts durability better than financial restructuring (Dadu et al., 2024; Makeche & Chowa, 2023; Robinson et al., 2023). This logic is also strengthened by the work of participatory development scholarship that defines institutional ownership as the driving force behind programme sustainability (Donessouné et al., 2023; Kinsbergen et al., 2022; McLean et al., 2019; Lee, 2017). In the cases where the structure of co-design and shared accountability was not evident at the early stages, sustainability results were poor, even with efficiency within the organisation (Poncin, 2024; Ndombo et al., 2021). Operational viability, therefore, works as a relational state of governance which comes to life when the organisational ability is converted to institutional alignment and embedded in system-wide structures of coordination (Singh et al., 2022; Weaver et al., 2021).

4.2.5 Governance Architecture and Contextual Constraint

Lastly, the findings highlight the effects of contextual conditions of governance on viability limits. Scalability of otherwise healthy programmes was constrained by donor schedules, infrastructural bottlenecks and skewed sub-national capacity (Baldwin et al., 2024; Williams et al., 2019). Sustainability plans thus cannot be prescribed in general, but they need to be tuned to both governance architecture and systemic capacity (Gul & Morandé, 2023; Struben & Kapmeier, 2023). This supports the general theoretical thesis: the structural predisposition of operational viability. Fragmented ecosystems in governance cannot be replaced by internal reform only (Ansell et al., 2024; Eckel, 2023). Viability turns into a cross-level feature which relies on harmonised planning periods, institutionalised coordination platforms and system-sensitive donor practices (Meijs & Koolen-Maas, 2022; Singh et al., 2022).

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The paper redefines operational viability in education-oriented NGOs as a relational government state, as opposed to a managerial quality. Based on the evidence of mixed methods as evidenced in Zambia, the results prove that the operational viability is not concentrated within the financial stewardship, technical competence, and administrative efficiency. Rather, it comes to the place of convergence between organisational capability, institutional alignment and systemic coherence. Theoretically, the article contributes to the scholarship of project and programme management in three aspects. First, it moves the locus of viability out of the organisational level to the cross-level governance interface, demonstrating that sustainability depends on the congruency between the donor-funded project

cycles and state planning systems. Second, it merges the organisational resilience, institutional theory and systems thinking into a coherent explanatory methodology that explains the different but interacting failure modes, adaptive coping without institutionalisation, institutional misalignment despite internal capability and systemic fragmentation despite project-level success. Third, it places sustainability as not a result of technical fidelity, but as an emergent quality of coordinated governance structures in complex adaptive education systems. Empirically, the study demonstrates that programme continuity requires high internal governance capacity, which is not sufficient. Even technically efficient interventions find it difficult to scale or institutionalise where there is no linkage between project timelines, reporting structures, and accountability mechanisms and the government systems. Operational viability thus acts as a pre-qualifier to sustainability, but not when incorporated into consistent institutional and systemic structures.

What it means in the bigger picture is that the issues of sustainability in the donor-funded education programmes are not necessarily on the technical side, but the structural mismatch in governance. It is significant to strengthen internal organisational systems, yet without preliminary co-design, harmonised horizons of planning, and mechanisms of coordination on the system level, project-based interventions will not become part of the national systems. Reconceptualising operational viability as a system-based governance construct, this work gives a conceptual ground to investigate sustainability, going beyond financial sustainability or managerial efficiency. This relational model should also be further tested in future studies using various aid-dependent features to investigate how the differences in the governance architecture influence the sustainability of education interventions.

5.2 Recommendations

Based on the indication of late institutionalization and moderate scores on institutional alignment, the current research suggests that the formal institutionalization of early co-design protocols between the NGOs and the Ministry of Education (MoE). The study also recommends that project cycles should be calibrated with the government planning horizons to increase the alignment of development projects and national policy horizons. Permanent NGO-MoE coordination platforms at both national and sub-national levels should be set up, and jointly created monitoring dashboards, which should be open to both NGOs and governmental officials. Enhance learning-oriented MEL systems by institutionalising reflective learning processes, which go beyond donor or project reporting as well as the codification of lessons learned into policy briefs to aid system uptake and ongoing improvement.

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Access to and trust of information sources on Genetically Modified Organisms (GMOs) among extension workers in selected regions of Tanzania

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ABSTRACT

Modern agricultural biotechnology, particularly genetically modified organisms (GMOs), presents both opportunities and ongoing debates within agricultural development, placing extension workers at the centre of information exchange. The Source Credibility Theory is primarily a theoretical framework to guide this study. This study examined how agricultural extension workers in Tanzania access and trust sources of information on genetically modified organisms, drawing on data from a cross-sectional survey conducted in Dodoma, Geita, and Mtwara regions. The study population comprised agricultural extension workers from the selected regions. Non-probability sampling was employed to purposively select three regions, which are Dodoma, Mtwara and Geita, based on their agricultural characteristics and potential relevance to GMO-related information needs. The list of all extension workers and their contacts was obtained from the regional extension officer from every region. Within the regions, simple random sampling was applied to select extension workers, ensuring representation across districts and extension service structures. A total of 172 agricultural extension workers participated in the study. Data were collected using questionnaire surveys. The data was coded and analysed using the IBM SPSS Version 25.0. Descriptive statistics, including frequencies and percentages, were used to summarise respondents' characteristics and patterns of information source use. Inferential analyses, including chi-square tests and Cramer's V, were conducted to examine relationships between socio-demographic variables, particularly age, education level and region and trust in information sources. The results show that extension workers rely on diverse sources of information, but their confidence is placed in sources perceived as scientifically credible, especially universities and research institutions. The most favoured methods of information dissemination are training programmes and seminars, reflecting the value of interactive and explanatory formats for complex technologies. Traditional media such as radio and television remain relevant but secondary. Socio-demographic influences are limited, with education level and regional context shaping some trust and preference patterns. The study critically suggests that reliance on credible institutions alone is insufficient unless structured training opportunities are made routine and regionally responsive, underscoring the need for sustained institutional collaboration to support informed agricultural biotechnology communication within extension systems.

Key words: Agricultural, Biotechnology, Extension, GMO, Information Sources, Tanzania

I. INTRODUCTION

Agricultural biotechnology is a central element of contemporary agricultural innovation and holds considerable potential for addressing the global challenges, including, environmental sustainability, the impacts of climate change and food insecurity. The application of biotechnology in agriculture has evolved over time, beginning with ancient practices such as selective breeding and domestication, succeeding through standard practises such as hybridisation, and advancing to modern approaches (Riaz et al., 2025; Wuest et al., 2021). The advanced approach of agricultural biotechnology often referred to as modern agricultural biotechnology, encompasses a range of technologies including genetic modification, gene editing, and gene drive systems (Bhattacharjee et al., 2024; Singh et al., 2018). Empirical studies have shown that early applications of modern agricultural biotechnology, which is genetic modification, have contributed to improved crop yields, increase tolerance to drought and salinity, enhanced resistance to pests and diseases, and reduced dependence on chemical inputs (Amri & Saraswati, 2025; Hanif et al., 2023).

Despite this body of scientific evidence, the introduction and adoption of Genetically Modified Organisms (GMOs) have remained contested in many parts of Africa. Government responses vary widely across the continent. While countries such as South Africa and Nigeria have approved the commercial cultivation of genetically modified crops, others, including Tanzania, continue to approach the technology with caution and regulatory uncertainty (Akinbo et al., 2021; Kedisso et al., 2022; Mmbando, 2023). In contrast, countries such as the United States of America, Brazil,

Argentina, and India have integrated GMOs into their agricultural systems, reporting economic gains alongside environmental and productivity benefits (Eckerstorfer et al., 2019; Ishii & Araki, 2017; Menz et al., 2020). These contrasting adoption paths suggest that scientific evidence alone does not determine acceptance of GMOs; rather, how information about GMOs is communicated, interpreted, and trusted plays a critical role in shaping policy decisions and public responses.

In this context, effective communication of agricultural innovations becomes essential to understand differences in acceptance and adoption. The dissemination of information on Genetically Modified Organisms to rural areas relies on a diverse range of information sources. Studies have often mentioned government reports, research institution publications, mass media such as television, radio, and newspapers, as well as training workshops, non-governmental organisations, and peer networks among extension staff (Anyanwu & Udoh, 2022; Essougong et al., 2019; Mwaniki et al., 2017; Wunderlich & Gatto, 2015). In current years, digital platforms including websites, social media, and mobile applications have become increasingly important because of their speed and accessibility (Bharti et al., 2024; Kandagor et al., 2018; Ramavhale, 2024).

Trust and access of GMO-based information are strongly shaped by the nature, quality, and credibility of information disseminated by different actors, including scientists, policymakers, extension workers, and the media. The ways in which GMO information is communicated, and the level of trust related with different sources, are further influenced by existing policy positions and regulatory frameworks (Mmbando, 2024). In contexts where regulatory uncertainty exists, trust in information sources becomes particularly important.

Agricultural extension workers serve as intermediaries between scientific researches and farming communities, they translate technical knowledge into practical guidance, especially in rural areas where there is low access to formal education and scientific information (Arowosegbe et al., 2024). Their effectiveness depends on access to timely, accurate, and comprehensible information. However, extension workers often rely on multiple information sources and may have limited opportunities for continuous professional development in agricultural biotechnology, which can affect both their understanding of GMOs and their confidence in communicating related information.

Understanding how agricultural extension workers access, evaluate, and trust information about GMOs is therefore essential for developing effective communication strategies, strengthening extension services, and informing policy and capacity-building initiatives. Such understanding is particularly relevant in Tanzania, where decisions regarding agricultural biotechnology adoption remain cautious and questioned.

The findings of this study contribute to this understanding by examining the access and trust of information sources that provide information on Genetically Modified Organisms to extension workers. The study provide information that may assist extension workers in recognizing the value of different information sources and using them more effectively to balance existing extension and knowledge services. In addition, the findings may inform researchers, extension education providers, and policymakers in designing targeted training programmes that utilize appropriate and trusted information channels. Strengthening the use of reliable information sources has the potential to improve extension service delivery and, support better farm productivity and decision-making among farmers.

This study aimed to assess the access and trust of information sources consulted by agricultural extension workers regarding Genetically Modified Organisms. Specifically, the study sought to identify information sources on Genetically Modified Organisms initially accessed by extension workers, examine the sources they trust most, determine their preferred information sources and examine the influence of socio-demographic variable on trust and preference of information sources on Genetically Modified Organisms.

1.1 Research Questions

- i. What are information sources on Genetically Modified Organisms do extension workers consult?
- ii. Which information sources are trusted most by extension workers regarding Genetically Modified Organisms?
- iii. How do extension workers prefer to receive information on Genetically Modified Organisms?
- iv. How socio-demographic variables influence trust in information resources regarding Genetically Modified Organisms?
- v. How socio-demographic variables influence preference on information resources regarding Genetically Modified Organisms?

II. THEORETICAL REVIEW

2.1 Theoretical Framework

The Source Credibility Theory is primarily as a theoretical framework to guide this study. The Theory suggests that information acceptance and use depend largely on the perceived credibility of the information source. However, the theory does not adequately explain how individuals search, select, and use information based on their needs. Therefore, Information Seeking and Use Model was adopted to complement Source Credibility theory.



2.1.1 Source Credibility Theory

Source Credibility Theory provides the primary theoretical lens for this study. The theory originates from the persuasion research of Hovland, Janis and Kelly (1953; 1963), who argued that message acceptance depends not only on message content but also on the perceived credibility of the source, as cited by (Koch, 2024). Their experimental work demonstrated that identical messages recognized to highly credible sources were more likely to produce opinion change than those attributed to less credible sources (Hovland & Weiss, 1951). These findings established credibility as a central mechanism through which information influences beliefs and attitudes. Later studies advanced the concept by emphasizing that credibility is a perception held by message receivers, rather than an objective property of the communicator (McCroskey et al., 1974; McCroskey & Young, 1981). Audiences evaluate credibility largely through valuations of a communicator's expertise and trustworthiness, and, in some contexts, perceptions of goodwill or concern for the audience's welfare (McCroskey & Teven, 1999). Across communication scholarship, there is broad agreement that credibility is closely tied to the communicator's ethos, encompassing knowledge, integrity, and perceived motivation.

In science and risk communication, source credibility assumes carried importance because audiences often lack the technical expertise required to independently evaluate complex information. Under such conditions, individuals rely on experiential signs, particularly the credibility of the information source to make judgements about scientific claims (Pornpitakpan, 2004; Vraga & Bode, 2018). This dynamic is especially noticeable in communication about genetically modified organisms (GMOs), where uncertainty, competing interests, and contested narratives are common. Empirical studies consistently show that trust in scientists, universities, and public research institutions is positively associated with acceptance of genetic Modification technologies, while skepticism toward commercial actors and politically motivated institutions is associated with greater concern and resistance (Hunt & Wald, 2020). Thus, Source Credibility Theory provides a strong explanatory basis for examining why agricultural extension workers trust certain GMO information sources more than others, and how such trust shapes their beliefs and preferences. While Source Credibility Theory explains how information sources are evaluated, it does not explain how individuals come to encounter, seek, or select those sources in the first place. To address this behavioural dimension, the study is supported by Wilson's Information Seeking and Use Model (Wilson, 1999), one of the most influential frameworks in information science.

2.2 Information Seeking and Use Model

Wilson first introduced his general model of information behaviour in 1981, with subsequent refinements in 1994, 1997, and 1999, and further conceptual clarification in later work (Potnis, 2015). Across these iterations, Wilson consistently defined information behaviour as the whole of human behaviour in relation to information sources and channels, including information need recognition, information seeking, information searching, and information use. According to Wilson, information behaviour is initiated when a person's work role or life context gives rise to a perceived information need. This need does not automatically result in information seeking; rather, a range of intervening variables, including demographic characteristics, role demands, environmental constraints, and characteristics of information sources themselves (Wilson, 1999), mediates it. These variables can either facilitate or inhibit engagement with particular sources. Crucially, Wilson's model recognises that individuals operate within institutional and social contexts that shape both accesses to information and preferences channels. Information seeking is therefore not a purely rational or linear process, but a contextual and adaptive one, in which individuals balance effort, accessibility, perceived usefulness, and anticipated outcomes (Wilson, 1999).

2.3 Theoretical Implications for the Study

In the context of this study, Wilson's Information Behaviour Model explains how and why agricultural extension workers in Tanzania seek information about GMOs, while Source Credibility Theory explains how they evaluate and trust the sources they consult. Agricultural extension workers occupy a professional role that requires them to interpret and communicate scientific and technological information to farming communities. This role creates recurring information needs related to Genetically Modified Organisms, food security, and climate resilience. In line with Wilson's model, these needs prompt extension workers to engage with multiple information sources, including universities, researchers, government agencies, mass media, social networks, and private sector actors. However, Wilson's framework also predicts that contextual and personal factors, such as education level, regional location, and institutional exposure, shape both access to and selection of information sources. This aligns closely with the study's empirical findings, which show that education level and region significantly influence preferred sources and trust patterns, while gender and age do not.

Source Credibility Theory then provides the evaluative mechanism through which these accessed sources are judged. Although extension workers may encounter information from a wide range of channels (as explained by Wilson's model), they do not assign equal trust to all sources. Instead, consistent with credibility theory, sources perceived as possessing higher scientific expertise and institutional legitimacy, particularly university scientists and

public research institutions, are trusted more than commercial or informal sources. Thus, Wilson's model explains exposure and use, while Source Credibility Theory explains trust and acceptance. Together, the two frameworks offer a coherent explanation for the study's key findings: extension workers draw on diverse information sources due to role-driven information needs, but they selectively trust sources perceived as credible when forming beliefs about GMOs.

The integration of Wilson's Information Behaviour Model with Source Credibility Theory, this study captures both the behavioural process of information seeking and the evaluative process of credibility assessment. This combined framework is particularly suited to the GMO context, where information is abundant but trust is unequally distributed across sources. The integration also provides a theoretical basis for the study's recommendation that stronger partnerships between universities, research institutions, and extension services are necessary. Such partnerships not only improve access to information (as emphasised by Wilson's model) but also strengthen the credibility of GMO communication (as emphasised by Source Credibility Theory), thereby supporting more informed and trusted knowledge transfer within the agricultural extension system.

III. METHODOLOGY

3.1 Study Design and Approach

This study employed a cross-sectional design to examine the access and trust of information sources on genetically modified organisms among agricultural extension workers in selected regions of Tanzania. A cross-sectional approach was suitable because the study required to capture existing patterns of information seeking, source and trust at a single point in time rather than to assess change over time (Tashakkori et al., 2020; Tobi & Kampen, 2018). A quantitative research approach was adopted. Quantitative data provided measurable forms of source, trust, and preference. This approach aligns with information behaviour research, which recognises that information seeking and evaluation are shaped by both observable actions and contextual factors (Pluye et al., 2022).

3.2 Study Area

The study was conducted in Tanzania, a country characterised by various agricultural zones that influence agricultural practices and the relevance of agricultural technologies. Tanzania comprises several agricultural zones, including arid and semi-arid zones, coastal, lake zones, plateau, southern and western highlands, and alluvial zones (Mkonda & He, 2018). These variations shape both agricultural production systems and information needs among extension workers. Purposively three regions, namely, Dodoma, Geita, and Mtwara were selected in this study. Dodoma represents arid and semi-arid conditions with low and variable rainfall, where drought-tolerant technologies are particularly relevant. Geita, located within the plateau and lake zone, supports crops such as cotton, maize, and cassava under moderate to high rainfall conditions. Mtwara represents the coastal zone, characterised by climatic and soil conditions suitable for crops such as maize, cassava, and soybean. These regional differences provided a relevant context for examining how location influences information access, source use, and trust.

3.3 Study Population and Sampling

The study population comprised agricultural extension workers from the selected regions. The extension workers were selected because of their professional role in accessing, communicating and interpreting, scientific and technological information to farming communities. Both non-probability and probability sampling techniques were used. Non-probability sampling was employed to purposively select three regions which are Dodoma, Mtwara and Geita based on their agricultural characteristics and potential relevance to GMO-related information needs. The list of all extension workers and their contacts were obtained from the Regional extension officer from every region, within the regions, simple random sampling was applied to select extension workers, ensuring representation across districts and extension service structures. A total of 172 agricultural extension workers participated in the study.

3.4 Data Collection Methods

Data were collected using questionnaire surveys. Structured questionnaires were used to collect quantitative data, both printed and online questionnaires were distributed to respondents. The respondents who were easily accessible were given printed questionnaires face to face while online structured questionnaires distributed to respondents who were difficult to reach.

3.5 Data Analysis

The data were coded and analysed using the IBM SPSS Version 25.0. Descriptive statistics, including frequencies and percentages, were used to summarise respondents' characteristics and patterns of information source use. Inferential analyses, including chi-square tests and Cramer's V, were conducted to examine relationships between socio-demographic variables, particularly age, education level and region and trust in information sources.

IV. FINDINGS & DISCUSSION

4.1 Socio-demographic Characteristics of Respondents

The study involved 172 agricultural extension workers from the selected regions. As presented in Table 1, males constituted 64.0% of the respondents, while females accounted for 36.0%. This indicates a male-dominated extension workforce in the study areas, a pattern that has been widely reported in agricultural extension services across many African contexts. While this imbalance reflects broader structural and occupational trends rather than sampling bias, it provides important background for interpreting information use and trust patterns observed later in the study.

With regard to age, almost half of the respondents (48.3%) were between 31 and 40 years, followed by those aged 21–30 years (22.7%). Respondents aged 41–50 years (15.1%) and 51–60 years (14.0%) were less represented. This age structure suggests that the extension staffs in the study regions are largely composed of young to middle-aged professionals. From an information behaviour perspective, this demographic profile is relevant because individuals in these age groups are typically active in seeking information and adapting to new knowledge demands associated with evolving agricultural technologies.

Table 1

Socio-Demographic Characteristics of Respondents

Demographic characteristics	Frequency (N)	Percentage (%)
Gender		
Male	110	64.0
Female	62	36.0
Total	172	100.0
Age		
21-30	39	22.7
31-40	83	48.3
41-50	26	15.1
51-60	24	14.0
Total	172	100.0
Education Level		
Diploma	62	36.0
Graduate	110	64.0
Total	172	100.0

In terms of educational attainment, the majority of respondents (64.0%) held a graduate degree, while 36.0% had a diploma. The relatively high level of formal education among extension workers suggests a workforce with the capacity to engage with technical and scientific information, including complex topics such as Genetically Modified Organisms. This educational background is particularly important in relation to trust in information sources, as higher levels of education may enhance the ability to assess expertise, credibility, and institutional authority when evaluating information.

4.2 Initial Information Sources on Genetically Modified Organisms

The ways through which agricultural extension workers first access information on Genetically Modified Organisms provide important insight into how its knowledge enters the extension system. As shown in Table 2, formal educational institutions were the most frequently reported initial source of information, cited by 15.1% of respondents. This was followed by researchers (14.0%), indicating that first exposure to GMOs-related information often occurs within structured learning and research environments.

Fewer respondents reported mass media sources, particularly television (9.9%) and radio (5.2%) as initial sources of information. Interpersonal sources, including friends (7.0%), colleagues (5.8%), and parents or guardians (2.9%), were also mentioned, although less frequently. Small portion of respondents cited other sources such as written materials, internet or websites, non-governmental organisations, government or community leaders, and agricultural officers. Particularly, a large proportion of respondents (25.0%) reported that they had not yet accessed information on GMOs at the time of the study.

The prominence of educational institutions and researchers as initial information sources suggests that knowledge on GMOs is primarily introduced in formal and professional channels. This finding is consistent with earlier studies showing that formal education plays a central role in equipping extension personnel with scientific and technical

knowledge (Karembu et al., 2011). Universities and research institutions often serve as entry points for exposure to new agricultural technologies, particularly during training, academic programmes, and professional development activities.

The relatively limited role of mass media as an initial source contrasts with findings from other contexts where radio and television are widely used for disseminating agricultural information due to their broad reach (Mubofu & Watson, 2020; Pius Mtega, 2018). The lower reliance on these channels in this study may reflect limited availability of biotechnology-focused programming or the technical nature of GMO-related information, which may require more detailed explanation than mass media formats typically provide.

Interpersonal sources, while present, played a modest role in initial exposure to biotechnology information. Although previous research has highlighted the importance of social networks in early-stage information diffusion (Miorner et al., 2025), the findings of this study suggest that extension workers may exercise caution when relying on informal sources for information on complex and potentially controversial technologies, such as GMOs.

Table 2

Initial Sources of Information on Genetically Modified Organisms

Information source	Frequency (N)	Percentage (%)
At school/university/learning/ center	26	15.1
From researchers	24	14.0
From Television	17	9.9
From a friend	12	7.0
From a colleague	10	5.8
From parents/guardian	5	2.9
From Radio	9	5.2
From Newspaper	3	1.7
From a written article/journal/book	10	5.8
From internet/website	5	2.9
From NGO (environmental activist)	3	1.7
From Community/Government leaders	1	0.6
From agricultural officer	4	2.3
Never heard of GMO	43	25.0
Total	172	100.0

The low reporting of internet-based sources and written materials may be linked to challenges such as limited digital access, digital literacy constraints, and language barriers, which have been identified as factors limiting the effective dissemination of agricultural innovations in rural settings (Ndimbwa et al., 2019). Together, these patterns indicate that while multiple information sources exist, initial exposure to GMOs among extension workers remains uneven and largely dependent on formal institutional channels.

4.3 Trusted Sources of Information on Genetically Modified Organisms

Trust in information sources plays a major role in how agricultural extension workers interpret, accept, and transmit knowledge on GMOs. University scientists appeared as the most trusted source of information among respondents, as presented in Table 3. A large proportion of extension workers expressed faith in university scientists, with 46.5% indicating a great deal of faith and a further 15.7% reporting some faith, while only a small proportion reported little faith or uncertainty. This strong faith in academic sources reflects perceptions of scientific expertise and neutrality, particularly in relation to complex technologies such as GMOs.

This is consistent with previous studies showing that scientists are often regarded as highly trusted sources of GMOs information because they are closely linked with research and knowledge production rather than commercial interests (Adisa et al., 2011). Similar patterns have been reported in other contexts, where academic researchers are viewed as knowledgeable and objective when communicating scientific innovations. In the United States, for example, university scientists are consistently ranked among the most reliable authorities on biotechnology (Riaz et al., 2025).

Government institutes were also broadly trusted, although responses showed greater variation compared to university scientists. While 36.6% of respondents reported a great deal of faith and 14.5% reported some faith in government sources, others expressed little faith (19.8%) or uncertainty (16.9%). These results suggest that government is an important source of information towards GMOs, but trust is shaped by perceptions of regulatory effectiveness and transparency. Hallerman et al., (2022) reported that government agencies tend to be trusted in environment where regulatory frameworks are seemed as clear and credible, while doubt may arise where political influence or weak enforcement is suspected.

Trust in extension workers as information sources was moderate. A quarter of respondents articulated a great deal of faith in fellow extension workers, others reported some faith, little faith or uncertainty. This finding aligns with evidence from Nigeria, where extension workers were found to place high trust in their fellows due to shared professional experiences and awareness with local farming environments (Sobalaje et al., 2019). However, the difference observed in this study suggests that trust among peers may depend on individual levels of exposure to biotechnology training and experience.

Table 3*Trusted Sources of Information on Genetically Modified Organisms*

Information source	Level of trust	Frequency (N)	Percentage (%)
Government	No response	21	12.2
	Don't know	29	16.9
	Little faith	34	19.8
	Some faith	25	14.5
	A great deal of faith	63	36.6
Local leaders	No response	25	15.5
	Don't know	44	25.6
	Little faith	36	20.9
	Some faith	27	15.7
	A great deal of faith	40	23.3
Extension workers	No response	23	13.4
	Don't know	41	23.8
	Little faith	33	19.2
	Some faith	32	18.6
	A great deal of faith	43	25.0
University scientists	No response	18	10.5
	Don't know	24	14.0
	Little faith	23	13.4
	Some faith	27	15.7
	A great deal of faith	80	46.5
Local farmers	No response	23	13.4
	Don't know	54	31.4
	Little faith	38	22.1
	Some faith	24	14.0
	A great deal of faith	33	19.2
Seed companies	No response	16	9.3
	Don't know	39	22.7
	Little faith	28	16.3
	Some faith	33	19.2
	A great deal of faith	56	32.6
Environmental groups	No response	37	21.5
	Don't know	36	20.9
	Little faith	32	18.6
	Some faith	30	17.4
	A great deal of faith	37	21.5

Local leaders attracted comparatively lower levels of trust. Although some respondents expressed a great deal of faith, a large proportion reported uncertainty or little faith in local leaders as sources of GMOs-related information. Ezezika et al., (2012), who found that local leaders are often perceived as lacking technical expertise in GMOs, limiting their influence in shaping beliefs on scientific agricultural innovations, reported similar observations. This pattern may indicate low engagement of local leadership in communicating knowledge about GMOs.

The respondents trusted seed companies, with 32.6% expressing a great deal of faith and 19.2% reporting some faith. This finding echoes studies by (Ricroch & Hénard-Damave, 2016; Rukanda, 2018) which noted that seed companies play a significant role through investments in crop varieties with improved tolerance to drought, heat, cold, and salinity. Trust in these companies may mirror extension workers' recognition of their technical capacity and practical involvement in technology development. However, the presence of doubt and low trust among some respondents suggests continuing anxieties about commercial motives.

Concerning environmental groups, some respondents expressed a great deal of faith, others reported uncertainty or little faith. This variation mirrors findings from studies in Kenya and Nigeria, where trust in environmental groups

was found to depend on perceptions of transparency, scientific basis, and community engagement (Adenle *et al.*, 2015). In some cases, environmental organisations are viewed as advocates rather than neutral providers of technical information, particularly in debates surrounding GMOs.

Local farmers were among the least trusted sources, with many respondents expressing little faith. Although farmers' experience is valued in making decisions on agriculture, they are not regarded as primary sources of technical information on GMOs. Similar observations have been reported in other African countries, where farmers are respected for practical experience but are not seen as authoritative sources on scientific innovations (Adenle *et al.*, 2015)

In Tanzania, trust of extension workers on agricultural innovations depends on the present institutional arrangements. The Ministry of Agriculture plays an essential role in providing trainings on new technologies and innovations to extension workers (Rodriguez *et al.*, 2019), while university scientists, researchers and fellow extension officers remain important sources of technical knowledge (Oladipo *et al.*, 2020). Trust in seed companies and environmental groups are shaped by concerns about interests and advocacy positions. Although local leaders influence community perceptions, they are less central in shaping extension workers' trust in biotechnology information.

The above findings show that trust on GMOs information sources is strongly associated with perceptions of scientific expertise, institutional validity, and role in knowledge production. The Government institutions and university scientists are in central positions in the trust landscape. These trust frameworks help to understand how extension workers access information and decide which sources to use when communicating GMOs information to farmers.

4.4 Preferred Sources of Information on Genetically Modified Organisms

Preferences for information sources help to know how agricultural extension workers wish to receive GMOs-related knowledge and the formats they find most effective. The most preferred source of GMOs information was special programmes such as training and seminars (52.3%), as shown in Table 4. This shows a strong preference toward interactive learning environments when engaging with complex scientific topics such as GMOs.

Table 4

Preferred Sources of Information on Genetically Modified Organisms

Information Source	Frequency (N)	Percentage (%)
Through radio	82	47.7
Special programs(Training and seminars)	90	52.3
Through TVs	75	43.6
Magazines	75	43.6
News papers	62	36
Mobile phones	47	27.3
Extension Officers	55	32

Training and seminars enable face to face interaction and direct engagement with experts; this can facilitate explanation of difficult concepts and easily deliverance of message. It has been recognised as particularly effective for communicating technologies including genetic engineering (Food and Agricultural Organization [FAO], 2011). The observation from the study implies that extension workers value environment that allows dialogue, questioning, and practical illustration.

The respondents show preference on Radio by Radio 47.7%, television and magazines followed closely, each preferred by 43.6% of respondents. This aligns with findings from Sobalaje *et al.* (2019), who reported that extension workers preferred receiving agricultural information through colleagues, radio, and television programmes. The continued relevance of radio and television suggests that traditional broadcast media remain important in rural communication due to their accessibility, affordability, and wide reach, despite the growing availability of digital platforms. Magazines were also moderately preferred, reflecting their role in providing written content that can be read and revisited at the reader's convenience. Mwangi and Kariuki (2015) informed that printed materials allow readers to absorb technical details at their own pace, which can support understanding of complex information. However, newspapers were less preferred (36.0%), a finding is consistent with (Wulandari, 2015), who found that agricultural extension workers tend to rely less on newspapers due to inadequate coverage of specialised agricultural topics and sometimes cannot be available in rural areas.

Also, the 27.3% of respondents preferred mobile phones, the increase in mobile technologies made the mobile phones remain underutilised as primary channels for GMO information. Although mobile platforms have considerable potential for delivering timely and location-specific agricultural information, lower preference may be linked to challenges such as data costs, limited content in local languages, and inadequate familiarity with advanced mobile functions (Wasan & Jain, 2017). This finding suggests that the potential of mobile-based communication has not yet been fully realised within the extension system. Extension officers as information source were preferred by 32.0% of

respondents. While this proportion is relatively modest, this suggests that peer interaction remains relevant, particularly for practical problem-solving. However, the lower preference compared to formal training and media channels may indicate that extension workers prioritise science facts and institutional sources over knowledge exchanges among themselves when dealing with GMOs-related information.

The preferences observed in the study involve both access considerations and learning styles. For complex scientific content, participatory and interactive formats such as field demonstrations, training workshops and seminars are generally favoured over passive media formats (FAO, 2022). The similar results have been reported in other countries; for example, extension workers in Ghana and Uganda have been found to prefer training seminars, radio broadcasts, and mobile phone-based alerts (Ishii & Araki, 2017). However in Nigeria, Oladipo et al., (2020) reported a stronger preference for internet-based sources when accessing information on GMOs, suggesting contextual differences in digital access and capacity. Previous studies in Tanzania have also reported a preference for special programmes such as training and seminars, followed by radio, mobile phones, and television (Rodriguez & Lee, 2016). Although printed materials such as magazines and newspapers are infrequently used, they are often perceived as out-dated or difficult to access in rural settings. Face-to-face interaction with fellow extension officers is valued for its practicality and relevance, particularly when information is grounded in field experience.

In contrast, findings from Lee and Kim (2020) indicate that respondents in more digitally enabled environment tend to prefer the internet, television, academic papers, and technical books. The difference between these findings and those of the present study highlights the influence of infrastructural capacity, digital literacy, and contextual relevance in shaping information preferences. Globally the findings specify that extension workers prefer information sources that are interactive, accessible, and aligned with their professional responsibilities. Trainings and seminars supported by media and digital tools appear most suitable for communicating GMOs information. These preferences emphasize the importance of designing communication strategies that combine scientific credibility with practical delivery formats suited to rural and extension environment.

4.5 Relationship between Socio-demographic Variables and Trust in Information Sources

Understanding how socio-demographic characteristics relate to trust in information sources provides awareness into whether confidence in GMOs information is shaped by personal attributes or broader contextual factors. The relationship between trust and selected demographic variables which are region, gender, age, and education level were examined in different sources of GMOs information (Table 5).

The findings found that only a few socio-demographic variables influence trust in information sources. For several information sources, including government institutions, extension officers, and seed companies, no statistically significant relationships were observed with any of the demographic factors considered. In these cases, all p-values exceeded the 0.05 threshold, and Cramer's V values ranged from weak to modest (0.088–0.226), suggesting that trust in these sources is relatively stable across demographic groups.

Trust in government sources showed no significant association with region, gender, age, or education level. This finding suggests that extension workers' confidence in government as a source of GMOs information is not strongly differentiated by demographic characteristics. Similar observations have been reported by the Ndimbwa et al. (2019), which found that trust in government on science-related issues is often shaped more by institutional performance, policy transparency, and governance credibility than by individual demographic attributes. This highlights the importance of regulatory transparency and institutional effectiveness in shaping trust.

Table 5*Relationship between Socio-Demographic Variables and Trusted Information Sources*

Trust source	Demographic Factor	χ^2 (df)	p-value	Cramer's V	Significant (p < .05)
Government	Region	8.103	0.423	0.153	No
	Gender	1.321	0.858	0.088	No
	Age	9.510	0.659	0.136	No
	Education level	3.490	0.479	0.142	No
	Region	13.227	0.104	0.196	No
Local leaders	Gender	4.843	0.304	0.168	No
	Age	16.768	0.159	0.180	No
	Education level	12.319	0.015	0.268	Yes
	Region	19.011	0.015	0.235	Yes
Extension officers	Gender	4.191	0.381	0.156	No
	Age	4.191	0.381	0.156	No
	Education level	1.790	0.774	0.102	No
	Region	9.187	0.327	0.163	No
University scientists	Gender	2.393	0.664	0.118	No
	Age	10.227	0.596	0.141	No
	Education level	0.664	0.956	0.062	No
	Region	18.438	0.018	0.232	Yes
Local farmers	Gender	3.223	0.521	0.137	No
	Age	12.896	0.377	0.158	No
	Education level	10.074	0.039	0.242	Yes
	Region	3.661	0.886	0.146	No
Seed companies	Gender	3.836	0.429	0.149	No
	Age	13.404	0.340	0.161	No
	Education level	8.803	0.066	0.226	No
	Region	8.456	0.390	0.222	No
Environmental groups	Gender	4.008	0.405	0.153	No
	Age	16.992	0.150	0.314	No
	Education level	10.399	0.034	0.246	Yes
	Region	8.456	0.390	0.157	No

In contrast, trust in local leaders was significantly associated with both education level ($p = 0.015$, Cramer's $V = .268$) and region ($p = .015$, Cramer's $V = .235$), indicating moderate associations. These results suggest that perceptions of local leaders as credible sources of information on GMOs vary depending on respondents' educational background and geographical context. Extension workers with higher levels of education may assess local leaders more critically in terms of technical expertise, while regional differences may reflect variations in leadership engagement with agricultural innovation. This pattern differs from the study done by Tanny and Al-Hossienie (2019), reported that trust in local leader was also influenced by gender and age, highlighting contextual differences across settings.

Trust in university scientists was significantly related only to region ($p = 0.018$, Cramer's $V = 0.232$). This suggests that geographical location influences trust in scientific sources, possibly due to being far away from research centres, universities, or the visibility of scientific outreach activities across regions. While education level did not show a significant relationship in this study, earlier work has shown that trust in university scientists can be linked to attitudes toward agricultural biotechnology Wingenbach and Rutherford (2005), suggesting that appropriate exposure may matter more than formal qualifications in shaping trust.

For local farmers, education level was the only demographic factor that associates with trust ($p = 0.039$, Cramer's $V = 0.242$). This finding indicates that educational background shapes how extension workers evaluate farmers as sources of biotechnology-related information. Respondents with higher education may place greater emphasis on evidence generated through formal research, whereas those with lower levels of formal education may value experiential knowledge and observed farming outcomes more strongly. This interpretation is consistent with earlier research showing that evaluations of knowledge sources vary according to educational orientation (Singh et al., 2018).

Education level was also significantly associated with trust in environmental groups ($p = 0.034$, Cramer's $V = 0.246$), while age, gender, and region showed no significant association. This implies that perceptions of environmental

organisations are influenced by respondents' educational background, potentially reflecting different clarifications of advocacy roles, scientific evidence, and perceived neutrality in biotechnology debates.

No significant relationships were found between any demographic variables and trust in seed companies or extension officers. This indicates that trust in these sources may be shaped more by perceived competence, experience, and past interactions than by respondents' demographic characteristics. For extension officers in particular, trust is likely influenced by professional credibility and familiarity within the extension system rather than by age, gender, or educational differences.

4.6 Relationship between Socio-demographic Variables and Preferred Information Sources

Examining the relationship between socio-demographic characteristics and preferred information sources provides information into whether communication channel preferences are shaped by personal attributes or broader contextual factors. As presented in Table 6, the analysis shows that most preferred communication channels, which are radio, special programmes such as training and seminars, television, magazines, and extension officers, do not vary significantly across region, gender, age, or education level. This suggests a general consistency in how extension workers prefer to receive GMOs information, regardless of their socio-demographic characteristics. In the earlier findings radio emerged as one of the most preferred sources, it does not show statistically significant association with any demographic variable, including region ($p = 0.192$), gender ($p = 0.274$), age ($p = 0.853$), or education level ($p = 0.258$). Also, preference on television was not significantly influenced by region ($p = 0.740$), gender ($p = 0.529$), age ($p = 0.620$), or education level ($p = 0.515$), and the same results were observed for magazines. These findings suggest that broadcast and print media remain broadly accessible and acceptable channels across different demographic groups within the extension workforce.

Special programmes such as training and seminars also showed no significant association with any socio-demographic variable. This uniform preference aligns with evidence that participatory and face-to-face learning formats are widely valued across professional groups, particularly when dealing with complex agricultural technologies. Magsi et al. (2024) reported that participation in extension training is strongly linked to perceived relevance and prior exposure rather than demographic characteristics, which may explain the broad appeal of training and seminar-based communication observed in this study. Two information sources, revealed statistically significant associations. Preference for newspapers was significantly related to region ($\chi^2 = 6.653$, $p = 0.036$, Cramer's $V = 0.197$), indicating that regional setting influences the extent to which newspapers are used as a source of information towards GMOs. This finding is consistent with observations by Rodriguez and Lee (2016), who reported variation in GMOs information coverage across newspapers in countries such as the Philippines, Vietnam, China, and Thailand. Such differences in content availability and emphasis suggest that newspapers may be a more effective communication channel in some regions than others, depending on editorial priorities and access.

Mobile phones also showed a significant association with region ($\chi^2 = 7.647$, $p = 0.022$, Cramer's $V = 0.211$), indicating a moderate relationship. This suggests that while mobile phones are increasingly recognised as a potential communication tool, their use as a preferred channel for GMOs information is influenced by regional factors such as network coverage, digital infrastructure, and local practices. The study done by Gupta et al., (2020) found that increased use of mobile phones among extension workers was associated with greater interaction with farmers on modern agricultural technologies, claiming the potential use of mobile platforms when environmental conditions are favourable. The lack of significant associations between demographic variables and most preferred information sources contrasts with some earlier studies. For example, Mtega (2012) reported gender-based differences in access to television, noting that men were more likely to access TV-based agricultural information due to greater availability of free time compared to women. The absence of such differences in the present study may reflect changes in work patterns among extension workers or greater professional equality in access to information resources within the extension system.

Table 6*Relationship between Socio-Demographic Variables and Preferred Information Sources*

Communication Channel	Demographic Factor	χ^2	p-value	Cramer's V	Significant (p < .05)
Through Radio	Region	3.297	0.192	0.138	No
	Gender	1.198	0.274	0.083	No
	Age	0.785	0.853	0.068	No
	Education level	1.280	0.258	0.086	No
Special Programs	Region	4.083	0.130	0.154	No
	Gender	0.020	0.888	0.011	No
	Age	6.280	0.099	0.191	No
	Education level	0.210	0.647	0.035	No
Through TVs	Region	0.603	0.740	0.059	No
	Gender	0.396	0.529	0.048	No
	Age	1.775	0.620	0.102	No
	Education level	0.425	0.515	0.050	No
Magazines	Region	1.935	0.380	0.106	No
	Gender	0.945	0.331	0.074	No
	Age	0.646	0.886	0.061	No
	Education level	2.528	0.112	0.121	No
Newspapers	Region	6.653	0.036	0.197	Yes
	Gender	1.227	0.268	0.084	No
	Age	4.399	0.221	0.160	No
	Education level	1.458	0.227	0.092	No
Mobile Phones	Region	7.647	0.022	0.211	Yes
	Gender	0.479	0.489	0.053	No
	Age	1.848	0.605	0.104	No
	Education level	2.091	0.148	0.110	No
Extension Officers	Region	1.556	0.459	0.095	No
	Gender	0.386	0.534	0.047	No
	Age	5.038	0.169	0.171	No
	Education level	0.004	0.953	0.005	No

Findings related to media preferences also resonate with evidence from Kenya, where Karembu et al. (2011) reported that mass media coverage of GMOs was often inadequate for informed public debate and policy engagement. Limited or uneven coverage of GMO-related issues may reduce the perceived usefulness of certain media channels, contributing to uniform preferences across demographic groups.

Furthermore, the absence of significant variation in preference for extension officers across region, gender, age, or education level suggests that this channel is consistently regarded as accessible and relevant within the extension system. This uniformity indicates that professional peer networks continue to play a stable role in agricultural communication, even if they are not the most preferred source for biotechnology-specific information.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study demonstrates that trust and access of information on GMOs among extension workers are shaped primarily by perceptions of credibility and usefulness rather than by demographic characteristics. Extension workers gravitate toward sources they regard as scientifically grounded, institutionally legitimate, and capable of supporting professional learning. Interactive and participatory communication formats are particularly valued when dealing with complex and contested technologies such as genetically modified organisms.

The findings further suggest that information behaviour in the extension system is driven more by professional role and contextual exposure than by individual attributes such as age or gender. Regional context and educational background matter in selective cases, but overall trust and preference patterns reflect broader institutional and communication dynamics. These conclusions underscore the central role of credible institutions and appropriate communication formats in shaping how biotechnology knowledge is interpreted and conveyed within the extension system.

5.2 Recommendation

The study recommends that stronger partnerships should be established between universities, research institutions, and extension workers to ensure a continuous flow of reliable information on GMOs. Interactive platforms such as special programs, training sessions, and seminars should be expanded, incorporating demonstrations and participatory approaches. Communication strategies should also be region-sensitive, utilizing the most accessible channels such as newspapers and mobile phones where adoption is high, and exploring alternative outreach methods in areas with limited access to these tools.

Given that trust in information sources varies by education level and region, tailored trust-building initiatives should be implemented to make messages credible and relevant. Continuous capacity-building programs for extension officers are essential, as they are themselves trusted sources of information. Finally, an integrated communication strategy combining mass media, print media, digital platforms, and interpersonal approaches will ensure wide coverage and effective dissemination of information regarding Genetically Modified Organisms.

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The role of linguistics in promoting biocultural diversity for sustainable development: A case of Chindali spoken in Ileje, Songwe Region, Tanzania

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ABSTRACT

This paper aimed to analyse the role of linguistics in promoting biocultural diversity for sustainable development by studying Chindali, an indigenous language as spoken in the Ileje District of the Songwe Region in the southern highlands of Tanzania. Using Chindali as an example of another indigenous language, the paper discusses the vital function of language in promoting biocultural diversity for meeting the United Nations Sustainable Development Goals (SDGs). This study is based on Luisa Maffi's 1996 Biocultural Diversity Theory. This study employed a qualitative approach with a descriptive research design. Data were gathered through text collection. The population of this study consisted of Chindali native speakers found in Ileje District who are estimated to be 193,000 people. The population also included texts written in Chindali. To inform the study, 8 informants were sampled using purposive and snowball sampling techniques, which resulted in data saturation. The researchers also collected a book written in Chindali, which demonstrates biocultural diversity in different stories. Data were analysed descriptively through thematic analysis. The findings indicate that indigenous languages serve as a means of communication and, at the same time, act as a store of significant biocultural variation, including culture, ecology, and biodiversity. It demonstrates that indigenous languages play an important role in conserving and transferring biocultural information required for long-term development, influencing community behaviours in biodiversity, land use, and sustainability that adhere to the UN's 2030 Sustainable Development Goals 11, 12, and 15. The study adds to the scant literature on the role of linguistics in promoting biocultural diversity for sustainable development. The study suggests more research on Bantu orthography so that Bantu languages should be in written form.

Keywords: Biocultural Diversity, Chindali, Linguistics, Sustainable Development, Sustainable Development Goals (SDGs)

I. INTRODUCTION

Various intellectuals have expressed an interest in sustainable development. Because of its significance, the United Nations (UN) has taken steps to recognise it as a key 2030 Agenda item. This sustainability Agenda addresses all sectors of society, politics, economics, and culture. In response to this Agenda, current researchers have studied various aspects, including the function of linguistics as a component of culture, in promoting biocultural diversity for sustainable development. However, conclusions remain inconsistent, particularly regarding the function of indigenous languages in fostering biocultural diversity for sustainable development; because indigenous languages are not emphasised, Kiswahili and English have taken on this role in East Africa (Ondondo, 2020). In the rest of Africa, the major language is English.

Although some researchers have attempted to address the role of linguistics in promoting biocultural diversity for sustainable development (Maffi, 1998; Hanspach et al., 2020; Gavin et al., 2015), the issue remains under-represented in the Chindali language, which is spoken in Ileje, Songwe, in Tanzania's southern highlands. This gap inhibits our understanding of how biocultural development, particularly through indigenous languages, might attain sustainability. As a result, this study investigates the function of linguistics in enhancing biocultural diversity for sustainable development, using Chindali spoken in Ileje, Songwe region, the southern highlands of Tanzania, as an example. The findings are expected to help inform both sustainable development policy and language planning for sustainable development.

1.1 Statement of the Problem

The world is moving towards sustainable development, as outlined in the United Nations' 2030 Agenda. The strategy emphasises ecological preservation, climatic resilience, and biodiversity, as outlined in SDG 11, 13, and 15. However, linguistics is little addressed as a component of sustainable development. On the other hand, much work on the function of linguistics in encouraging biocultural variety for sustainable development is cross-linguistic; little has been



done to address the issue in Chindali. The study is significant because it adds to our understanding of the role of linguistics in promoting biocultural diversity for sustainable development using Chindali language.

1.2 Research Objective

Investigates the critical role of the language plays in promoting biocultural diversity sustainability and the implications of their loss for achieving the United Nations Sustainable Goals (SDGs).

II. LITERATURE REVIEW

2.1 Theoretical Review

The study is underpin by Biocultural Diversity Theory (Maffi, 1998). According to the theory, Cultural Diversity, Linguistic Diversity, and Biological Diversity are all interrelated and mutually beneficial. Cocks (2010) states that biodiversity is increasingly recognized as an essential resource on which families, communities, and nations depend. The idea will be useful in investigating the role of linguistics in supporting biocultural development for the Chindali language. The continuity losses of biodiversity around the world remain problematic for nature conservation (Bridgewater & Rotherham, 2019); in this line, it is very important to investigate the critical role of the language plays in promoting biocultural diversity sustainability and the implications of their loss for achieving the United Nations Sustainable Goals (SDGs) to develop the theory. The theory will assist the researcher in collecting and analysing words demonstrating biocultural and sustainable development.

The supporting theories are Linguistic Relativity, advocated by Benjamin Lee Whorf in 1897-1941 and Edward Sapir in 1884-1939, which states that language influences how people perceive and categorise the world, Traditional Ecological Knowledge, pioneered by Harold Conklin in 1950, which states that indigenous languages and local communities hold sophisticated ecological knowledge passed down from one generation to another through language and oral traditions, and Sustainable Development Theory which require environmental protection, cultural preservation and social equity. The researcher will examine data using these ideas by linking collected terms that depict biocultural variety and sustainable development.

2.2 Empirical Review

The globe drive towards sustainable development as UN' 2030 agenda. The agenda emphasizes on ecological preservation, climate resilience and biodiversity, which is well stipulated in SDG 11, 13, and 15. However, it overlooked linguistics as the dimension of sustainable development. Maffi (2005) explain the linkage between language, culture and biodiversity forming the biocultural diversity. Maffi (Ibid) argues that linguistics plays a crucial role in sustaining biocultural diversity, as a language encodes traditional ecological knowledge vital to sustainable development. The assertion implied that for development sustainability it is important to put emphasis of these aspects in interconnection and not as separate entity. Maffi (1998) concludes that language is fundamental for conserving traditional ecological knowledge essential to biodiversity. Hanspach et al. (2020) states that biocultural approaches, anchored in linguistic diversity and increasingly recognized as a vital for addressing complex sustainability challenges through pluralistic worldviews.

Across linguistics, many languages around the world encode rich ecological knowledge and sustainable practices development. As these languages face extinction there is an urgent need to understand their role in sustaining both local environments and global at large. Gavin et al. (2015) a strategy for incorporating traditional knowledge and cultural values into conservation efforts is explained by Gavin et al. (2015). In a similar vein, Pretty et al. (2009) discuss the significance of cultural practices, traditional knowledge, and local government in maintaining biodiversity. Grenoble and Whaley (2006) are of the view that indigenous languages carry taxonomies, oral traditions, and cosmologies that guide sustainable interactions with the Environment. Gorenflo et al. (2012) supports that there is significant correlation between areas of high biodiversity and high linguistics diversity. The non-expert of the biocultural diversity understands the communicated knowledge to build ecological literacy. A salient concern of biodiversity conservation arena is to understand how language can be employed by experts to communicate knowledge to non-expert audiences and build economical literacy.

According to Agbeleoba et al. (2025), in their study of ecolinguistic and critical discourse analysis of environmental narratives in sustainable development goal communications, languages play an important role in improving global development sustainability. Gul et al. (2025) argue that language can either perpetuate unequal notions or develop a sense of interconnectedness with nature, demonstrating how indigenous languages approach environmental issues. The difficulties discussed are those that individuals face on a daily basis in their communities. United Nations Educational, Scientific and Cultural Organization, [UNESCO] (2025) encouraged members of the G20 Culture Working Group, which met in Durban, South Africa, to strengthen their engagement in linguistic diversity through policies, partnerships, and concrete initiatives that support the revitalisation, preservation, and promotion of indigenous languages



as critical to long-term development. On the other hand, Ondondo (2020) advocates for the use of indigenous languages in sustainable development, stating that for a nation to develop educationally, socially, politically, and culturally, its people must interact with the language they understand best; thus, indigenous languages play an important role in the propagation of development issues. Thus, to have good command in linguistics empower an individual to involve actively in sustainability. The strong command in language has a significant relationship with development sustainability.

Apart from the efforts made by various authors to address the role of linguistics in promoting biocultural diversity for sustainable development in accordance with the Global Agenda of SDG 11, 13, and 15, little has been done to emphasise linguistics, particularly indigenous languages, in promoting biocultural diversity for sustainable development. This study aims to bridge the gap by investigating how the Chindali language spoken in Ileje district, Tanzania, plays an important role in promoting biocultural variety for sustainable development. This knowledge gap is evidenced by Otamendi-Urroz, et al., (2025) who state that there is a research gap on biocultural diversity in Africa and Asia which need to be presented, specifically in traditional knowledge, values and worldviews.

III. METHODOLOGY

The study was undertaken in the Bundali division of the Ileje District in the Songwe Region, with a focus on Ngulugulu village, where Chindali is the native language. The area was selected because it is a remote area, which appears to be less influenced by other languages. A qualitative approach with a descriptive study design was employed to examine the role of linguistics in promoting biocultural diversity for sustainable development. The researcher opted the descriptive research design because the focus of the study is describe the characteristics of collected words that carries ecological knowledge and portray the biocultural diversity for sustainable development. The population of this study consisted of Chindali native speakers found in Ileje District who are estimated to be 193,000 people (LOT, 2009). The population also included texts written in Chindali.

A sample of 8 elderly native speakers from the village was selected because they are insightful in language and culture. The informants were obtained through purposive and snowball sampling technique. The researcher sampled the native insightful key informants in the study area who were able to tell life stories and narrate Chindali folklores through both linear and exponential non- discriminative snowball sampling technique. The researcher consulted village and hamlet leaders to obtain their permission to collect data. The researcher obtained the first native insightful key informants purposively who could provide stories and narrations by asking the first villager to tell him about the native insightful key informants who could provide stories and narrations. After the session, the researcher asked the informants the person who was conversant in Chindali language and culture till 8 informants who saturated the information. Snowball technique was opted for because it is natural and convenient in collecting natural and authentic information from a native speaker. It enabled the researcher to get potential informants that could narrate Chindali folklores and give life stories about social and cultural issues where different terms for biocultural diversity were selected. These informants produced sentences from the natural setting, the context in which language is used. The technique was suitable because giving narrations and life stories is a special skill not everyone can have. Some people are not talented in speaking skills.

Primary data were collected through semi-structured interviews, allowing face-to-face conversations with informants at their residences. Data collection sites included funeral ceremonies, markets, and households. A researcher asked informants to narrate stories about oral traditions, terminologies of different soils, agricultural cycles and practices, ritual for land conservation, and environmental practices. To check the consistency of the responses, unstructured and probing questions were used to gather further information related to prior inquiries. This process continued until saturation was reached. Written records of the information were taken, extracting sentences and Chindali terms with biocultural diversity. Secondary data were gathered through a documentary review of one Chindali text known as *Tutunoshange Utwajha Twitu* by Konga (2019) his review supplemented the data collected through semi structured interviews and aimed to reflect the contemporary state of Chindali. Using various methodologies for data collecting allowed for triangulation of findings, which improved the validity and dependability of the results. Throughout the study, ethical considerations were prioritized, such as getting informed consent, maintaining participant anonymity, and preserving participant rights. Overall, the technique established a solid foundation for undertaking ethical, accurate, and reliable research on the function of languages in promoting biocultural variety for long-term development.

The study used deductive thematic analysis because qualitative data analysis is flexible (Braun & Clarke, 2006; Sauro, 2015). Deductively, themes were derived from existing Chindali terms selected from various sentences extracted from narrations, stories, and Chindali written texts. These sources prompted the researcher to study the crucial role of language in promoting biocultural diversity sustainability, as well as the implications of language loss for fulfilling the United Nations Sustainable Development Goals.



IV. FINDINGS & DISCUSSION

4.1 Findings

This section covers the findings of the importance of linguistics in supporting biocultural diversity for sustainable development. This study demonstrates that indigenous languages play an important role in conserving and transferring biocultural information required for long-term development. Indigenous languages serve as stores of environmental, cultural, and ecological knowledge, influencing community behaviours in biodiversity, land use, and sustainability.

Konga (2019) *Tunoshange Utwaya Twitu* 'We Are to Keep Our Environment' provides an example in the Chindali language. The book emphasises how indigenous linguistic expression embodies ecological ideals and sustainable actions. In the first chapter, *Ichisu Isa Muumwo uChala Akachipela* 'The World as Created by God,' Konga quotes Genesis 1:31, "God saw all that He had made, and behold, it was very good," to emphasise the natural world's completeness and sanctity. He uses this theological insight to advocate for environmental conservation, writing in Chindali: "*Bhwo uChala aamala ukupela utundu twoshi, akatesha nu kwagha kooshi akandu kiisa pandaashi papaake*". This is a direct confirmation of the divine nature and value of all creation, which justifies its preservation.

In seven chapters, Konga (Ibid.) elaborates on Ndali cultural traditions relating to environmental management.

1. *Ichisu Isa Muumwo uChala Akachipela* 'The World as Created by God' provides a theological and cultural basis for conservation. (Chapter 1)
2. *Ubhukabhi Ubhwa Fula* 'The richness of Rain' explores rain as a symbol and source of ecological richness. (Chapter 2)
3. *Ukupemba Ulupya*'s 'Burning the Grazing Mountain Area' critically investigates the customary practice of burning pastureland during the dry season to promote grass regeneration. While beneficial in the short term, it is found to be environmentally harmful. (Chapter 3.)
4. *Tukulondighwa Ukubhyala Amakokwe Amingi* advocates for community-wide afforestation and replanting efforts. (Chapter 4)
5. *Imbwibhwi Isha Miishi* 'Water Springs' highlights the ecological and cultural significance of preserving freshwater sources. (Chapter 5.)
6. *Ubhulindilili Ubhwa Fipeligwa* 'Preservation of Biodiversity' focusses on indigenous techniques for sustaining biodiversity. (Chapter 6)
7. *The Indope Jhikufundhisha Ilongwi* 'Manure Fertilises the Soil' initiative promotes sustainable agriculture practices through organic fertilisation. (Chapter 7)

Konga's study demonstrates how indigenous languages capture systems of knowledge that are critical to local and global environmental objectives. By articulating environmental, agricultural, and religious traditions in Chindali, the author not only protects cultural legacy, but also provides insights into sustainable living based on traditional ecological knowledge. His critique of damaging behaviours such as *ukupemba ulupya* ('Burning the Grazing Mountain Area') demonstrates the dynamic character of indigenous knowledge systems capable of conserving traditions while also responding to ecological constraints. These findings demonstrate the critical role of linguistics, particularly indigenous language preservation and documentation, in furthering sustainable development goals through the protection and revitalisation of biocultural variety.

The data collected and analysed for this study show that the Chindali language comprises a diverse set of phrases that convey biocultural knowledge essential for sustainable development. The extinction of the Chindali language is a serious threat to this knowledge and, by extension, biocultural diversity. These expressions highlight the intricate relationships between language, land, agricultural activities, oral traditions, and spiritual life.

4.1.1 Soil Terminology

Chindali language identifies several types of soil using particular names, each containing ecological information about its qualities and applications.

**Table 1***Soil Terminology*

Term	Ecological Information
i/mu-chitifya	swamps
i/mu-ngolongo	warm, fertile lands
i/mu-ngumba	frigid locations with barren soil
i/mu-chitukula	Black, dusty upper-layer soil
i/mu-chiponda	clay soil
i/mu -panya	Lime soil
i/mu –sangalabhwe	Stony soil
i/mu -chikulishi	red stony soil,
i/mu -chishi	muddy soil
i/mu -chibhumba	sticky soil

3.2 Agricultural Practices

The Chindali speaking community employs traditional agricultural methods, each encoded in distinct linguistic terms:

Table 2*Terms Showing Agricultural Practices*

Term	Ecological Information
Fisabhi	terraces
Undipa	terrace less
Ukwalikila	mulching

These words describe not just the physical properties of the soil, but also their roles in promoting or limiting biodiversity. For example, marsh and lime soils are deemed unsuited for agriculture, yet they fulfil diverse ecological services depending on their type. This soil taxonomy reflects an indigenous ecological classification system that is incorporated in the language. The Chindali-speaking group uses traditional agricultural methods, each stored in separate linguistic terms:

Fisabhi 'terraces' refers to the method of growing soil terraces on sloped terrain to reduce erosion and maximise arable acreage. *Undipa* 'without terrace', on the other hand, is used to cultivate flat terrain that has not been terraced. *Ukwalikila* 'mulching' is covering the soil with organic materials like grass or tree branches to conserve moisture and avoid erosion. These examples demonstrate how indigenous languages embody sustainable land management approaches.

4.1.2 Seasons

Chindali uses unique words to highlight seasonal variations and guide agricultural planning:

Table 3*Season Terms*

Term	Ecological Information
Kumpingo	signals the start of the rainy season
Pachishiku	rainy season
Palumu	dry season

These phrases assist communities in coordinating agricultural activities with meteorological trends, assuring timely planting and harvesting. The seasonal calendar inherent in the language demonstrates a deep awareness of the local environmental cycle.

3.4 Oral Traditions and Cultural Expression

The study discovered that Chindali oral traditions, such as folktales, riddles, and songs, are crucial for conserving and disseminating biocultural information. An elderly respondent recalled:

“Abho Tata na bho Majhi bhakatupangilagha utupango na majholo linga twalya tukulindilila ukupitila” ‘Our fathers and mothers told us folktales in the evening after dinner before bedtime.’ (Tumpe, 25/09/2025)

When asked about the significance of these stories, she explained:



"Shikatumanyishanga, ukushimanya inyingi isha pa chisu" *"They helped us to understand many things about the world"* (Asekisye, 15/19/2025)

These narratives serve as repositories of cultural values, environmental awareness, and moral education. Similarly, *ifyili* (riddles) are used to stimulate critical thinking among children, while *amalengwe* and *ichibhota* (traditional songs) are performed during weddings, funerals, initiation rites, and agricultural festivals. These oral forms link ecological knowledge with social cohesion and identity.

"Abho Tata na bho Majhi bhakatupangilagha utupango na majholo linga twalya tukulindilila ukupitila"
"Our fathers and mothers told us folktales after supper before bedtime". (Tumpe, 25/09/2025)

When asked about the significance of these stories, she stated,

"Shikatumanyishanga, ukushimanya inyingi isha pa chisu" *"They helped us to understand many things about the world."* (Tumpe, 25/09/2025)

These narratives preserve cultural values, raise environmental awareness, and provide moral education. Similarly, *ifyili* (riddles) are used to encourage critical thinking in youngsters, but *amalengwe* and *ichibhota* (traditional songs) are performed at weddings, funerals, initiation ceremonies, and agricultural festivals. These oral forms connect ecological knowledge, social solidarity, and identity.

4.1.3 Spiritual Practices

Chindali is also utilised in spiritual contexts, particularly in hallowed places called *lisheto/masheto* 'shrine(s)', where religious and ancestral ceremonies are held. During these rites, the community asks the *mishuka* 'spirits of the deceased' for blessings on crops or other communal needs. The use of Chindali in these ceremonies emphasises the spiritual aspect of biocultural variety, as language serves as a conduit for linking people to environment and ancestors.

The analyzed data demonstrated that indigenous languages are more than communication tools: they are biocultural knowledge system. They rich of language knowledge, culture and biodiversity that woks in interlinkage (Maffi, 2005). Analysis of data shows language is a carrier on both cultural values and biodiversity; thus, language loss threatens not only cultural heritage but also the practical wisdom needed for sustainability and identity (Dastgoshadeh & Jalilzadeh, 2011). For development sustainability, linguistics acts as a bridge to ecology as evidenced by Fill and Mühlhäusler (2006) that ecolinguistics studies show that the loss of linguistics diversity parallels biodiversity loss, demonstrating how languages function as repositories for local ecosystem knowledge.

Incorporating indigenous knowledge into development planning could significantly enhance the effectiveness of SDGs, particularly SDG 11 on sustainable community, 13 on climate action, and 15 for life on land (United Nation, 2015). This assertion supports emphasis made by UNESCO (2023) that emphasizes the importance of language diversity for sustainable development as well as the rapid pace of language loss. Buizer et al. (2016) explain that biocultural diversity encompassing linguistics practices provides a framework for integrating cultural knowledge and ecosystem stewardship in sustainable development. Hanspach et al (2020) agree with Buizer et al (Op.Cit), suggesting that comprehensive biocultural frameworks that incorporate linguistic and cosmological elements strengthen conservation tactics by drawing on integrational knowledge systems.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study demonstrates how indigenous languages, such as Chindali, play an important role in maintaining and disseminating biocultural knowledge, which is required for sustainable development. These languages serve more than only communication purposes; they also preserve traditional ecological knowledge, cultural practices, spiritual beliefs, and environmental ethics. The extinction of indigenous languages endangers not only cultural heritage, but also the practical ecological wisdom encoded in these languages, which is critical for biodiversity protection and climate resilience.

5.2 Recommendation

The report recommends that policymakers include indigenous knowledge and linguistic diversity into national and global development policies to improve ecological stewardship, cultural resilience, and community-driven sustainability efforts.



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Multigrade teaching in primary schools in rural and remote areas of Assin Central District of the Central Region of Ghana: Teachers' perspectives

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ABSTRACT

The study explored teachers' perspectives on teaching multigrade classes in rural and remote areas. It was a phenomenological study that was guided by the constructivist theory. Teachers who are involved in multigrade teaching in primary schools in the Assin Central District of the Central Region of Ghana constituted the population of the study. All 12 multigrade primary teachers were included (census) in the study and were interviewed. Data were recorded and transcribed and analyzed through the thematic and narrative approaches. The study revealed that multigrade teaching has become an unavoidable option for providing instructions to rural and remote learners. It requires teachers who are well-trained, resourced, innovative, and committed to embracing this practice. However, the majority of the multigrade teachers lacked the requisite knowledge to teach multigrade classes as a result of a lack of training in multigrade pedagogy. Although teachers have not received any formal training on multigrade teaching, they were able to adopt strategies such as collaboration, peer tutoring, and differentiation to effectively meet the diverse needs of pupils. As a recommendation, multigrade teaching calls for much broader regulation and policy measures to address the problems, especially in remote and rural education systems. The implication is that teacher training institutions across the country should officially recognize and accept multigrade teaching as a key pedagogical option and design courses that will help teachers cope with multigrade classes, especially in rural and remote places where teachers are in short supply. Another implication for practice is that teacher training institutions should include in their curriculum the knowledge, skills, and experiences teacher-trainees require to teach multigrade classes. Professional development programs and in-service programs in multigrade teaching should also be developed for all practicing teachers.

Keywords: Collaboration, Differentiation, Integration, Monitoring, Monograde, Multigrade, Peer Teaching, Supervision

I. INTRODUCTION

Primary education in Ghana forms part of Ghana's basic education structure which is the minimum level of formal education every Ghanaian child of school-going age is entitled to. Primary education in Ghana lasts years (ages 6–11). The curriculum is free and compulsory and is defined as "the minimum period of schooling needed to ensure that children acquire basic literacy, numeracy, and problem-solving skills as well as skills for creativity and healthy living" (Ministry of Education, 2018). It is divided into lower and upper primary. In Ghana, primary education commonly occurs in predominantly monograde classrooms. This is underpinned by the philosophy that children of similar ages are likely to need similar learning opportunities in order to acquire the knowledge, values and skills required for their age. In this context, primary education starts at age 4 and lasts six years. It is structured in four phases: phase 1 consists of two years of KG (ages 4 and 5), phase 2 is made up of 3 years of lower primary education (ages 6 to 8), whilst phase 3 consists of 3 years of upper primary education (ages 9 to 11). This is contrary to the belief that grouping children across different age span is considered to be a less effective in achieving the objectives of primary education in Ghana (Ministry of Education, 2018).

The main objectives of primary education which is offered through the monograde approach are: developing the child's ability to count, use numbers, read, write and communicate effectively; laying the foundation for the development of the child's ability for enquiry and creativity; developing sound moral attitudes and a healthy appreciation for our cultural heritage in children as well as developing in the child ability to adapt constructively to a changing environment. These objectives are attained through the various courses taught at the primary school level of education in Ghana. These courses include English language, Ghanaian languages, science, history, RME, creative arts, computing, mathematics, physical education, and French (not compulsory for all basic schools) There is no certificate of completion at the end of primary school (MoE, 2018). Primary school teachers in Ghana are trained by either the University of Cape Coast or University of Education, Winneba as well as affiliate Colleges of Education in Ghana. These teachers are trained in subject specific perspective but are also trained in general courses. They are provided with

an all-round core courses and adequate content knowledge, skills and experiences to teach effectively at the primary school level (Ghana Education Service [GES], 2022) in mono-grades where learners of the same age, abilities, aptitude, interest and needs were grouped together in classes or grades. In Ghana's monograde primary education system, all teacher education, text books, policies, curricula, as well as assessment are established according to monograde principles. This enables monograde teachers to develop activities for all subjects for a single grade. This promotes effective teaching since teachers concentrate on single grades.

In recent years, access to primary education in Ghana has seen remarkable progress. According to GES (2022), enrolment in primary schools increased from 27% in 2019 to 30% in 2020 and the net primary school enrolment rates in 2022 stands at 84.4%. Despite the significant progress that have been made in primary education in Ghana, there are still barriers that hinder effective implementation of primary education, especially, in rural and remote areas in Ghana. Among the challenges are teacher shortages and absenteeism, particularly in rural areas. Due to the unavailability of amenities in the rural areas, teachers posted to remote and rural areas often do not accept postings (Addy, 2013), where they accept, they sometimes vacate their posts in no time. The GES appeal to teachers posted to remote areas to report to duty, often fall on death ears. According to the Ghana Education Service, as of 2020, 44.8% of schools have teacher vacancies (GES, 2022). This usually results in a situation where one teacher teaches two or more curriculum grade levels, hence, the phenomenon of multigrade teaching.

In multigrade classes, a single teacher teaches pupils from multiple grade levels either in the same classroom or in different classrooms within the same timetabled period. Multigrade classes are often found in rural areas where there are few teachers. This phenomenon becomes the unavoidable choice where teachers are in short supply especially in the remote and hard-to-reach areas and where learning resources are woefully inadequate (Hargreaves, 2001). Multigrade classes are common in Ghana, although not official, and many other developing countries, where they are often seen as the only inevitable option for education. In Nepal, multigrade teaching has been described as the situation in which a teacher teaches more than one class at the same time either in the same classroom or in a different classroom. In Malaysia, multigrade teaching involves the teaching of children from two or more grade levels in one classroom. The combination is usually of grades close to each other; for example, one and two, five and six. In Pakistan and Australia, however, as many as five or six grades may be combined into one class. Such contexts require the employment of particular teaching methodologies and effective classroom administration. In Indonesia, multigrade teaching is commonly found in small to large sized schools in which a teacher teaches more than one grade or class at the same time, either in different classrooms or in the same room divided by a partition (Virgílio, 2007).

In most developing countries, multigrade classes arise out of necessity rather than choice. For instance, in Zambia, multigrade teaching has been introduced in schools which are mostly in rural and sparsely populated areas and have difficult terrain. The main reasons justifying the introduction of multigrade classes include: 1) To increase access to education provision in disadvantaged areas; 2) To increase access to learning in understaffed schools; 3) To maximize use of available teachers and classroom space and; 4) To make use of available resources in the most cost-effective way (Virgílio, 2007). In Mozambique, the government's commitment to provide primary education of seven years is seriously compromised by the existing incomplete primary schools. This incomplete schools in the country have been addressed through the adoption of multigrade as a result of teacher shortage (Virgílio, 2007).

Officially, there are no multigrade schools in Ghana. However, multigrade teaching is not new. A cursory observation in several lower primary schools in the Central Region of Ghana, has revealed the emergence of situations where monograde teachers are required to teach different curriculum grade levels at the same time during school periods. Since teachers are trained in the skills and knowledge in teaching monograde in Ghana, multigrade teachers lack the requisite pedagogical skills, innovative teaching methods and strategies for teaching multigrade classes and that there is a lack of policy guidance for these teachers (Department of Education, 2008a). Besides, little or no attention has been given to phenomenon. This phenomenon therefore deserves scholarly attention as an object of scientific study. Notwithstanding this, there has been little research on teaching and learning in small rural schools over the last two decades especially on multigrade teaching, and information on the incidence of multigrade teaching is difficult to find (Mulryan-Kyne, 2007). Most research on multigrade teaching has focused on its impact on students' learning (Little, 2006). The discussion on multigrade teaching has often focused on comparing students' performance in monogrades and multigrades classes, hence, the need to undertake this study.

1.1 Research Questions

- i. What strategies do multigrade teachers use to implement single grade curriculum on multigrade basis?
- ii. What knowledge are needed by multigrade teachers to teach multigrade classes?
- iii. What challenges are encountered by multigrade teachers?

II. LITERATURE REVIEW

2.2 Theoretical Review

2.2.1 Constructivism

Constructivism was the key theory that underpinned this study. Developed by Jean Piaget (1896-1980), constructivism promotes active knowledge construction by learners which tailors learning to meeting the desired learning needs of each student. According to Krahenbuhl (2016), constructivism is an epistemological view of knowledge, arguing that knowledge is derived in a meaning-making process through which learners construct individual interpretations of their experiences and thus, construct meaning in their minds. Tomljenovic and Vorkapic (2020) contrast the "transmissive" or "traditional" approach to learning, which involves students passively receiving facts presented by their teacher, with "transformational" learning built on cognitivist and constructivist theories, which promote the student's active participation through exploratory, problem-based learning. In a multigrade teaching, where one teacher instructs multiple grade levels in one room, the constructivist teacher will encourage student-centered, flexible, and collaborative learning where learners will actively initiate, build and construct knowledge based on their own experiences. In this regard, learners do not passively receive information. By creating conducive constructivist environment with rich learning materials and supportive opportunities for exploration, the teacher observes and supports student thinking.

In this regard, the teacher caters for diversity in multigrade classrooms by fostering self-directed, cooperative and inquiry-based learning which allows students to construction meaning regarding the experiences they encounter at their own pace (Tomljenovic & Vorkapic, 2020). Thus, multigrade teaching requires teachers to act as facilitators by guiding learners towards the attainment of their desired learning needs. The teacher scaffolds learners to the desired level where learners can manage and control their own learning. Rooted in Lev Vygotsky's zone of proximal development (ZPD) and developed by Jerome Bruner, scaffolding aims to foster independent learning by meeting students at their current skill level. According to McIsaac (2019), scaffolding is the way teachers create the conditions that allow children to solve problems and learn new things. It is a crucial aspect of effective teaching, by which the teacher frequently modifies the level of support according to the level of performance of the students. The teacher may promote scaffolding in a multigrade classroom through providing cues, adapting learning activities to learners' ability, and modelling their abilities. To enhance the attainment of instructional objectives in a multigrade instruction, constructivism enables teachers to facilitate the zone of proximal development of every learner. Thus, the teacher encourages learners to work on tasks that are not only beyond their current level of understanding, but still within their reach with optimum support. This enables learners to own their own learning, interactive with peers, develop new skills, experiences and become aware of their own thinking processes. The constructivist teachers should therefore create learning centres which create room for hands-on exploration, technology-enhanced and diverse ways of employing multiple learning styles to meet individual differences in the multigrade classroom.

2.2 Empirical Review

2.2.1 Strategies Teachers Employ in Multigrade Classes

Effective multigrade teaching strategies involve creating a flexible, organized environment that support effective teaching. Gray's (2023) study pointed out differentiated learning as a crucial component of multigrade education. According to Gray, differentiated learning helps to ensure that all students are challenged and engaged in the learning process. By using flexible grouping, choice boards, personalized learning plans, project-based learning, and technology integration, teachers can create a dynamic and inclusive learning environment for their students. Providing activities for remediation or extension allows the teacher to gauge a child's level of learning. Activities can be differentiated by varying levels of complexity for several reasons, including the learning outcome, learning process, or complexity of the learning product (Gray, 2023). One their part, Taole and Mncube (2012) study showed that peer tutoring is key instructional practices the support effective teaching in multigrade classes. In peer tutoring, learners from different grade levels are paired together to learn from each other. This method involves assigning older or more experienced learners to assist younger or less-experienced learners in their studies. It requires the use of cooperative learning techniques that create an environment of trust among learners of different levels. The main goal of peer tutoring is to encourage collaboration, communication, and critical-thinking skills among learners while improving their academic performance. In this strategy, the learners act as teachers of other learners. Peer instruction engages students during class through activities that require each student to apply core concepts being presented, and then to explain those concepts to their fellow students. This promotes sharing of knowledge, meaningful engagement among learners in the classroom (Taole & Mncube, 2012).

Authentic cooperative learning opportunities have also been identified and suggested as crucial for multigrade classes. This strategy, according to Gray (2023), engages learners to work together in small groups for the purpose of accomplishing a shared task in small groups. In addition, Hoffman (2002) emphasizes flexible grouping strategies as

significant contributors to students' learning in multi-age classes. One can also assume that successful organization will be linked to the student-related social practices of the teachers and fairly distributed time management between the different groups of learners. Another strategy for promoting multigrade teaching is the split timetable and the common timetable strategies. Proposed by Cornish (2006a), the split timetable strategy enables teachers in one class with two grades study different subjects. According to Cornish, the teacher prepares two different lessons and alternates them between the grades. The common timetable strategy on the other hand enables students in multigrade schools to study the same subject at the same time, but on the basis of different instructions and activities for each grade.

2.2.2 Knowledge Needed by Multigrade Teachers

According to Kucita et al. (2013), most teachers feel incompetent for multigrade teaching because they are inadequately trained in multigrade teaching. They therefore have little to no knowledge in delivering multigrade classes even before they enter the actual classroom. Since teacher training institutions usually train teachers for monograde teaching (Kivunja & Sims, 2015), practicing teachers are more comfortable with monograde teaching than multigrade teaching and have more knowledge in monograde teaching. The nature of multigrade classes requires teachers who have adequately been prepared to effectively handle multigrade classes. This requires teachers to have knowledge in both content selection and knowledge in the choice of suitable and appropriate instructional resources and practices that suit the diverse needs of learners in diverse grades. In this regard, teacher training institutions which prepare teachers for primary schools are expected to train teachers in implementing multigrade instructions. The situation is however different in most developing countries where teachers are trained in specific content areas to implement content-specific curriculum in single grade system. This situation makes teachers deficient in knowledge for effective implementation of multigrade curriculum. Besides, teachers need knowledge in the policy guidelines which ensures and guide teachers in multigrade teaching. However, DoE (2008a) reports of lack of policy guidelines for multigrade teaching as a major challenge hindering effective implementation of multigrade teaching.

2.2.3 Challenges Encountered by Multigrade Teachers

Primary school curriculum in most developing countries is geared towards monograde classrooms. Brown (2010) argues that broadly in the multigrade arrangement, although learners of different grades comprise one class, learners have to pursue grade-appropriate curricula. Lingam (cited by Brown, 2010) identifies this requirement as the greatest challenge of multigrade teaching because it demands that the structure of the curricula, the learning resources and assessment strategies employed in the multigrade teaching, and the learning process take on a new shape and form from that of the monograde situation. Another major challenge confronting effective implementation of multigrade teaching is lack of policy guidelines for multigrade teaching (DoE, 2008a). Taole and Mncube (2012) investigated the experiences of multigrade teachers in rural schools. The result showed that most multigrade teachers encounter difficulties in instructional planning. Teachers indicated that they do not do separated planning for the grades that they are teaching. Instead, they do single planning for single grades. Promoting monograde teaching in multigrade schools therefore consumes time and usually results in effective teaching. Berry (2001) rather asserted that inadequate instructional resources and infrequent supervisions are key challenges confronting multigrade teaching. In relation to the problem of insufficient instructional resources, Kyne (cited by Brown, 2010) points out that the instructional materials also tend to be designed for the monograde classroom. Since such materials are designed for specific grades, their implementation in a multigrade classroom may not be effective.

III. METHODOLOGY

3.1 Research Design

This study used the phenomenological in-depth interviewing method to collect data from the multigrade teachers. It was a qualitative method intended to explore the strategies and challenges in implementing monograde curriculum on multigrade basis. The phenomenological method was chosen because it provided in-depth understanding of the experiences of these teachers who were small in number through one-on-one interview.

3.1 Population

The population used for this study involved 12 primary school teachers in all four schools affected by the incidence of multigrade teaching in the Assin Central District of the Central Region of Ghana. All the 12 teachers were included (census) in the study due to their small size. These participants were also included because they gave their consent to be part of the study.

3.2 Research Instrument

The research instrument used in gathering the data was interview guide which was guided by the objectives of the study. The interview guide consisted of four sections covering all the three research questions in addition to certain biographic data (section A) of respondents (academic qualification and teaching experience). The second section (Section B) dealt with items on strategies employed by multigrade teachers in teaching multigrade classes. The third section (Section C) covered items on knowledge required to effectively teach multigrade classes, whilst the fourth section (Section D) dealt with challenges encountered by multigrade teachers in teaching multigrade classes.

3.3 Credibility of the Instrument

The instrument was reviewed for credibility, transferability, dependability, and objectivity. The researcher clarified unclear items during the interview discourse. Where the participants found it difficult to comprehend some of the questions, the researcher focused more on those questions for proper clarification. The researcher kept records of the participants' ideas, and responses throughout the study. The researcher's biases were separated from the data obtained. Finally, the researchers returned interview transcripts to each of the participants. The participants were asked to read the transcribed data to see if the researchers captured all their responses. Where necessary, the participants were asked to make the required corrections to the data. This helped the researchers to collect data that resonated with the perspectives of the participants involved.

3.4 Data Collection Procedure

To ensure effective data collection, the researcher booked appropriate appointments with each of the participants before they were consulted for the interview process. A maximum of 15 to 20 minutes was spent with each participant from 3rd to 7th November, 2025. The interview section was audio-recorded after seeking both written and oral informed consent of participants. The participants were informed that the study was voluntary, hence, they were at liberty to exit at any time preferred.

3.5 Data Processing and Analysis

After reading the interview scripts, relevant points and ideas shared by the participants were documented. The researcher carefully read the scripts for each research question to identify codes. Similar comments were assembled under their corresponding research questions. The data were analyzed through the thematic and narrative approaches. This strategy was helpful in this study because they were believed to be the most appropriate analytical strategy for the phenomena studied within a naturally occurring setting (Cohen et al., 2018).

3.6 Ethical Considerations

All relevant ethical considerations by the Department of Business and Social Sciences Education of the University of Cape Coast, Ghana were adhered to. The researcher clearly defined the purpose of the study and assured participants' confidentiality and anonymity. The researchers informed the participants that pseudonyms were used instead of their real names. Hence, there was no way their names or school names were captured in the collection, analysis and interpretation of the data. The schools were identified with pseudonyms. The pseudonyms included school A, B, C, and D. Participants were also identified with pseudonyms. The pseudonyms included Desmond, Elliot, Michael, George, Ellis, Susana, Emma, Joel, James, Janet, Diana, Joana. The voluntariness of participation was considered to give participants the free will to exit should they become disinterested along the line. Lastly, the researchers issued the participants an informed consent letter before initiating the data collection process.

IV FINDINGS & DISCUSSION

4.1 Findings

In all the four schools, the researcher observed that all lower primary teachers were teaching multigrades all the days the researcher visited the schools. The multigrade-teaching situation however, differed from one school to another depending on the number of teachers and pupils enrolled and the strategies adopted by the teachers.

4.1.1 Teaching Strategies Adopted by Multigrade Teachers

Based on the data, there are some common strategies teachers used to promote multigrade teaching. To most teachers, successful teaching of multigrade classes involves putting two or three classes into one class. To such teachers, although multigrade pupils differ in terms of age, learning abilities and interest, putting them together and teaching them does not affect their performance since pupils in monogrades also share same or similar characteristics in terms of differences in age, learning abilities and interest. For instance, in schools B and C, teachers had to teach two different grades in the same class at the same time. Having taught one class, the teacher will have to give exercises and other

activities. While the first class is undertaking the exercise and performing tasks, the teacher then moves to other classes to teach. This poses great challenge especially when teachers have to monitor, supervise and assist pupils in undertaking the exercise. In response to this, Joel asserted that,

"I usually put all the students together in one class especially different corners of the class before I teach. This enables me to cater for everyone's educational need" (Joel, Nov. 4, 2025).

This was similar to the view of teachers in school A and D. In schools A and D, one main strategy adopted by multigrade teachers was grouping different classes into different sections of the same classroom. The researcher observed that the school was left with three teachers responsible for six grades. Some grades were, therefore, combined to ensure that teaching and learning take place in all grades (grades 1 to 6). Teaching in these classes becomes a challenge that the teachers in the school had to contend with. For instance, teachers had to teach two different grades in one class at the same time for more than four learning areas across the grades. This is corroborated by the response of Elliot who claimed that,

"At times I will have to combine two or three classes together in order to be able to teach".

When he was asked how he combines them, he responded that,

"At times, I put them in different sessions of the classroom and provide them with different blackboards and other teaching materials and teach them in turn" (Elliot, 4th Nov., 2025).

It is important to note that the challenge of adopting this strategy is that the rate of distraction among the two groups is always high. This phenomenon is crucial and complex phenomenon that demands skillful teachers. According to Kucita et al. (2013), teachers in this context are faced with the challenge of implementing a curriculum designed for a monograde to a multigrade class. George also mentioned that,

"You can't try it! You can't complete teaching in one class and move to another class to teach different concepts. You will be fully exhausted. So, what I do is to put all the affected classes together and teach them the same concepts. I create different sections and place the pupils according to their classes in the same classroom, although disturbances are inevitable, one group would disturb whilst you are teaching other groups. Class control and class management will become difficult especially when you happen to be the only teacher around" (George, Nov., 7, 2026).

In this case, teachers will either focus on a single grade level while other pupils in other grade levels are waiting. This implies that GES policy of placing pupils in different classes based on their age and learning abilities is being defeated. According to the GES (2022), primary education starts from age 4 and ends at age 11. Thus, disregarding the age, interests, needs and learning abilities of pupils and merging them into the same classes possesses threat to educational success and achievement on the part of the learner and national development as well. Participants in all the four schools, apart from either merging all the students into one group/class or teaching them separately in their separate grade levels, also employ peer teaching, small group activities, self-directed learning strategies and at times engages community members who are capable of assisting in teaching. Janet however gave a contrary view regard how she organizes multigrade teaching. She mentioned that,

"Teaching different classes at the same time within the same instructional period is not an easy task. I move from class to class to teach each class differently. Looking at the differences in abilities, there is no way I can combine them, put them in the same classroom and teach them. It is virtually impossible to do that. Besides, these students have different abilities, aptitudes, IQ levels and absorption rates. I think it is in relation to this that the GES has created different classes for pupils of different age range and learning abilities" (Janet, Nov. 4, 2025).

Janet rather preferred teaching the separate grades separately.

Participants in schools B and C rather preferred giving pupils the opportunity to teach their own colleagues. Although, not effective strategy, the participants indicated that in this strategy, pupils who are academically good in a particular subject area are selected to assist the academically weak pupils. It must be reiterated that this peer teaching strategy can be two dimensional. First, it can be one-to-one or one-to-several pupils and can take the form where older pupils and pupils in higher grades teach pupils in lower grade. Teachers must therefore be skillful at appointing the peer teachers themselves. This strategy is more helpful in the sense that it eases the workload and burden on the multigrade teacher (in terms of monitoring and supervision) and enhances peer learning. It also provides peer teachers the opportunity for self-evaluation and promotes the development of sense of responsibility and accountability (Hyry-Beihammer & Hascher, 2015). In the light of promoting 21st century skills among learners, peer teaching can help promote effective collaboration and team work among pupils in multigrade schools.

Closely related to peer teaching is small group activities. This was identified by participants in schools B and D. This occurs when teachers break pupils in one grade into groups and assign tasks to each group based on their abilities. One group could consist of 4 to 5 pupils where group leaders are chosen for the task. Grouping of pupils should be flexibly done and should be based on the nature of the activities to be undertaken. Where small grouping strategy is employed, the groupings is done on grade basis where pupils of different grades are grouped together whilst pupils of

the same grade also constitute another group. However, the researcher observed that the group composition varied considerably across the two schools (B and D) depending on the size of the class. According to Aashma and Neeti (2024), small group activities in multigrade classes provide immediate feedback and helps learners to progress at their own pace.

Furthermore, participants in all the four schools explained that they are able to keep pupils of both the same grade and different grades during school hours through the self-directed learning strategy. Through this strategy, learners of different or same grades are given the chance to engage in individual learning for the purpose of taking charge of their learning. In this regard, the learners take the initiative, with or without the assistance of others, in diagnosing their own learning needs, formulating learning goals, and identifying human and material resources for learning (Aashma & Neeti, 2024). The multigrade teacher only serves as a guide or facilitator and provides supporting hand when the need arises. Besides, the teacher ensures continuous supervision and monitoring in all the multigrade classes. Finally, participants were of the view that involvement of community members in multigrade activities have been very helpful strategy. In this context, responsibility is shared between the teacher and some members of the community where the school is located. Teachers usually rely on the services of retired educated persons, social workers, and literate parents in the community to support the teachers' efforts.

4.1.2 Knowledge Needed to Teach Multigrade Classes

To be able to teach multigrade classes effectively teachers require special knowledge which goes beyond the skills and training they received from their teacher training institutions. This is because, the teacher training institutions only offer training and skills in content, knowledge, pedagogical knowledge, curriculum knowledge, technological knowledge, pedagogical content knowledge, technological, pedagogical and content knowledge necessary for monogrades without necessarily training teachers for multigrades teaching. Participants were therefore asked to share their views regarding specific knowledge needed to teach such classes. In school C, teachers indicated that they were not trained to teach different classes at the same time during their pre-service training. They further indicated that they were rather trained to teach all subjects in a specific class during school period. So, if this phenomenon (multigrade) is occurring, then teachers need special training and experiences such as knowledge in teaching students with different abilities at the same time.

On the contrary, teachers in school A and D indicated that, although multigrade teaching occurs, the fact still remains that even in monograde classroom, teachers can still have learners of different age and learning abilities and yet teachers are able to cope with them. In school A, for instance, participants indicated that, what matters most is the knowledge in class control and class management as well as knowledge in creating conducive, welcoming and purposeful learning environment that will accommodate learners with different learning abilities. Teachers in school D on the other hand mentioned skills in classroom organization, classroom management as well as skills in promoting effective discipline in the classroom as key in teaching multigrade classes.

Another knowledge needed to teaching multigrade classes is skills in using differentiated instruction. This was shared by teachers in schools A, B, and D. Differentiated instruction involves proving instructions to meet the different ages, needs, interests and learning abilities of every student using varied course content, activities, and assessments. For instance, Michael shared that,

"Varying the course content, varying instructions as well as the learning activities to cater for individual differences especially in terms of their age, interest and abilities is one key strategy" (Michael, Nov. 5, 2026).

This was similar to the views shared by Ellis, who remarked that,

"Since we are talking about students from different grades but not the same grade, it is believed that they differ in their age, experiences, abilities and interests. Therefore, to me, the best knowledge teacher need is to be able to vary instructions to meet these diverse needs and abilities" (Ellis, Nov., 3, 2025).

Of utmost importance to the teaching of multigrade classes is knowledge in integrating technology in teaching. Teaching with technology can make lessons more interactive and attractive especially when the teacher possesses the requisites skill of combining technologies in their effective way. Incorporating different kinds of technologies reduces teachers' burden and caters for the diverse needs of learners. According to teachers in school B, although they lack access to technology in their school, they believe that teachers need to be equipped with relevant knowledge in using multimedia technological resources in multigrade schools. Susana remarked that,

"The effectiveness of technology under such (multigrade systems) situations cannot be ruled out since technology takes greater proportion of teachers' burden and promotes active engagements of learners in all learning activities. Teachers therefore needs to be taught how to use different technological resources in teaching multigrade classes" (Susana, Nov. 4, 2025).

Knowledge in encouraging collaborative learning among learners was also identified as key in teaching multigrade classes. Teachers shared that collaboration in learning minimizes teachers' engagements and promotes team spirit among learners. Diana remarked that,

"Promoting collaboration among learners is important because what the teacher needs to do is ensure that division of labor is encouraged in a team such that learners are able to learn more from their colleagues where they fall short" (Diana, Nov., 4, 2025).

Collaborative learning involves students working together and solving a specific problem, completing a task, and solving a certain problem (Fawcett et al., 2005). Janet, asserted that,

"Collaboration builds the intellectual ability of learners because through collaboration learners learn a lot from their colleagues. Here, the focus is on the learners collaborating with each other. This shifts much of the attention from the teacher to the learners themselves. Therefore, teachers need to acquire much skills and knowledge in building collaboration among learners" (Janet, Nov. 6, 2025).

4.1.3 Challenges of Teaching Multigrade Classes

All the four schools in this study raised the issue of lack of knowledge in teaching multigrade classes. It should be re-emphasized that in Ghana, teaching multigrade classes is a new phenomenon for many teachers especially newly posted teacher. They therefore lack the requisite knowledge in teaching these classes. This emanates from lack of in-service training, workshops, seminars, and lack of training on techniques of teaching multigrade classes. Teachers therefore resort to their personal innovative and creative means of handling such classes. Without proper training, the teachers' efforts would be in vain and they would not be able to achieve much (Kucita et al. 2013) in terms of teaching.

Another challenge raised was poor teaching practices. According to teachers, although they were trained in instructional practices required for monograde classes, whilst some of these practices are applicable to multigrades, others are not. Besides, the context of monograde classes is different from that of multigrade classes, hence, the need to adopt suitable teaching practices. The teachers mentioned teaching practices such as class control and class managerial techniques. They further indicated that due to the need to cater for pupils with different learning abilities and interest at the same time, there is the need for teachers to possess special teaching practice skills, which according to them, is lacking.

4.2 Discussion

This study investigated multigrade teaching in rural and remote primary schools in Assin Central, Ghana. The result shows that teachers face challenges in implementing multigrade teaching because they were ill-equipped by their teacher preparatory programs. Research shows that most undergraduate students do not receive adequate training in multigrade teaching, and therefore, have no idea about it when they enter professional life (Göçer, 2014). In a similar view, Checchi and Paola (2018) reported that teacher training education usually offer little to no training about teaching in rural regions or care less about it than other general educational programs. The multigrade teachers of this study argued that their teacher preparatory programs only prepared them theoretically which was also geared towards specific content education. In line with this outcome, Kucita et al. (2013) note that multigrade teachers feel incompetent because they are inadequately trained in multigrade teaching. The practicing teachers are more comfortable with monograde teaching than multigrade teaching and this explains why the outcome of this study revealed this as a major challenge that confronts multigrade teachers. This requires the teacher training institutions to revise their curriculum to make room for multigrade teaching.

Although the multigrade teachers in this study were not literate about the multigrade teaching, they devised their own strategies such as peer tutoring, differentiation, collaboration and cooperation to cope with the situation. The result of this study is consistent with the outcome of a study by Gray (2023) which concluded that multigrade classes allow teachers to make their own decisions about learning-teaching processes and develop and execute their own lesson strategies. Brown (2010) also argues that multigrade teachers can use different strategies and materials and integrate different disciplines. Due to the lack of knowledge in multigrade teaching, multigrade teachers are usually faced with diverse challenges that prevent them from meeting the learning needs of every learner. The temptation of applying their general pedagogical knowledge to multigrade classes at times become challenging since the context of monograde (in which they were prepared) differs from the multigrade context which requires the teacher to possess specific knowledge and experiences in combining students of different age grade or teaching different grades at the time. This will likely prevent the multigrade teacher from having adequate time to prepare lesson plans because they have to devote a significant amount of time and attention to all multigrade classes. The multigrade teachers regarded multigrade teaching as a challenging task that required multitasking, and therefore, could not devote enough time to in-class learning-teaching activities as well. The increase in teachers' workload was identified as another challenge encountered by multigrade teachers. Since teachers have to combine two or three classes, their workload in terms of teaching, monitoring, supervision, assessment, marking exercises, providing feedback as well as promoting remedial lessons

become herculean task for teachers. This situation becomes serious when the classes' size is large and there are few teachers involved in the multigrade teaching. This is consistent with the views of Göçer (2014) who asserted that teachers of multigrade schools are unable to cover much grounds in terms of the content as they are always overwhelmed by workload and administrative tasks they had to tackle at the same time.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

Multigrade teaching has become an unavoidable option for providing instructions to rural and remote learners. It however requires teachers who are well trained, resourceful, innovative and committed to embracing the practice, most multigrade teachers lack the requisite skills, knowledge and experiences of teaching multigrade classes. They have not received any formal training on how to teach multigrade classes, thus, they find the teaching of multigrade a challenging task to cope with. Although teachers have not received any formal training on teaching multigrade classes, they are able to adopt strategies and effectively combine pupils of different age and learning abilities for the purpose of implementing the monograde primary school curriculum on multigrade basis. Finally, multigrade teaching puts unbearable pressure on affected teachers. This usually results in increase in teachers' workload, poor teaching practices such as poor class control and class management and poor academic performance.

5.2 Recommendation

Multigrade teaching calls for a much broader regulation and policy measures to address the problems and issues regarding this phenomenon in remote and rural education system in Ghana. The Ministry of Education should officially recognize and accept multigrade teaching as a key pedagogical option in rural and remote places in Ghana where teachers are in short supply. The general idea is that, even in monograde classes, with just one grade group, there is always a considerable range of age, interests, abilities, aptitudes, maturity and needs which makes all teachers in monograde classrooms multigrade in disguise. Besides, the Ministry of Education and the GES need to be aware of the causes of multigrade teaching in rural and remote areas and put in place measures to address them. The government of Ghana, as a matter of urgency should provide the needed infrastructural and recreational facilities in rural areas. This will make teaching in rural areas attractive to teachers who are mostly posted to rural areas.

Teacher training institutions (University of Cape Coast and University of Education, Winneba) in collaboration with the Ghana Tertiary Education Commission, should include in their curriculum, knowledge, skills and experiences needed to teach multigrade classes. Professional development programs and in-service programs in multigrade teaching should also be developed by the Ministry of Education and the GES for all teachers. This will empower teachers with learner-centered pedagogies for teaching multigrade classes. It will also equip them with skills in planning lesson for multigrade classes, timetabling and class management and control in multigrade classes.

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Information-seeking behaviour and adoption of improved sorghum farming practices in Dodoma, Tanzania

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ABSTRACT

Reliable agricultural information is vital for adopting improved sorghum practices, including certified seed use, effective pest and disease management, and reducing post-harvest losses. Guided by the Diffusion of Innovations and Information Seeking behaviour frameworks, this study examined determinants of information-seeking behaviour and its influence on adoption of improved sorghum practices among farmers in Dodoma, Tanzania. A cross-sectional survey of 399 household heads was conducted using multi-stage random sampling. Quantitative data were obtained using a structured questionnaire administered by the researcher. Qualitative data were also collected through 15 key informant interviews with extension officers and agricultural experts. Data were analysed with descriptive statistics, a linear mixed model to identify predictors of information-seeking behaviour, and binary logistic regression to assess its effect on adoption. Thematic analysis was used to examine qualitative data. Education level ($\beta = 0.296$, $p = 0.008$) and ownership of communication assets ($\beta = 0.749$, $p < 0.001$) significantly increased information-seeking behaviour. Farmers who actively sought information were four times more likely to adopt improved practices ($OR = 4.03$, $p < 0.001$), while trust in credible sources also significantly enhanced adoption ($OR = 2.79$, $p = 0.006$). Strengthening extension systems, promoting credible information channels such as community radio and mobile platforms, and supporting farmer groups can enhance informed decision-making and adoption of improved sorghum practices in semi-arid regions. Interventions targeting farmers' education and access to communication tools are likely to maximise adoption outcomes.

Keywords: Information-Seeking Behaviour, Semi-Arid Agriculture, Sorghum Farmers, Technology Adoption, Tanzania

I. INTRODUCTION

People seek information when they perceive a gap in knowledge or experience uncertainty. Information-seeking behaviour encompasses purposeful searching, passive exposure, and evaluation of information for decision-making (Ruppel et al., 2020). It enables individuals to reduce uncertainty and make informed choices (Golman et al., 2022). This general understanding of information-seeking behaviour provides a foundation for examining how it operates within agricultural settings, where decision-making is closely tied to risk, productivity, and environmental uncertainty.

In agricultural contexts, this behaviour becomes particularly important when farmers confront unfamiliar technologies, production risks, or changing climatic conditions. Farmers actively seek information to solve production problems and improve productivity. Such behaviour may be triggered by push factors, including declining yields, pest outbreaks, and economic pressure, or by pull factors, such as access to credible information and perceived benefits of innovations (Nyamekye et al., 2021; Seenuankaew et al., 2018). Social forces and community norms may also facilitate information-seeking behaviour through encouraging adherence to prevailing agricultural patterns (Constantino et al., 2022). Through these processes, farmers evaluate risks and opportunities before deciding whether to adopt new practices. Building on this, it is essential to explore how farmers' information-seeking behaviour interacts with communication, socio-economic factors, and innovation characteristics to influence the adoption of improved farming practices.

Access to timely, credible information is decisive for adopting improved farming practices, including proper land preparation, certified sorghum seeds, appropriate fertilization, integrated pest and weed management, and better post-harvest handling, all of which enhance productivity, resilience, and market competitiveness. In Tanzania, such information is mainly delivered through the public extension system, supported by research institutions, Non-Governmental Organizations [NGOs], and the private sector via extension officers, farmer field schools, radio, demonstration plots, and mobile advisories (Matla, 2025; Mwantimwa & Ndege, 2022). While national policies promote modernization and climate-smart agriculture, limited extension coverage and staffing, especially in semi-arid regions



like Dodoma, constrain farmers' access to research-based guidance. Effective access to extension services and information channels is therefore closely linked to farmers' information-seeking behaviour, which enables them to obtain and apply knowledge for adopting improved farming practices and enhancing productivity.

Information-seeking behaviour of farmers enables access to timely and relevant information for making informed decisions. Credible information supports the adoption of improved farming practices, including the use of certified seed varieties, adoption of efficient pest, disease and weed management, and reduction of post-harvest losses (Mdoda et al., 2024; Rahman et al., 2020). This ability to seek and apply knowledge is even more critical in the wake of challenges such as climate change and evolving market demands, where farmers are required to remain adaptable and resilient. Sorghum farmers in Dodoma, Tanzania, employ diverse information sources, including extension services, radio programmes, and interpersonal networks, to obtain knowledge on modern farming practices to enhance productivity and livelihoods (Ndimbwa et al., 2021; Sennuga et al., 2020).

1.1 Statement of the Problem

Access to timely and credible agricultural information is essential for enabling farmers to adopt improved farming practices and enhance productivity. Through effective information-seeking behaviour, farmers obtain knowledge on innovations such as improved seed varieties, soil fertility management, pest and weed control, and post-harvest handling. This information helps farmers reduce uncertainty and make informed production decisions that can improve farm performance.

However, farmers' access to reliable agricultural information remains uneven in many developing agricultural systems. In Tanzania, agricultural information is mainly disseminated through extension services, research institutions, media platforms, and interpersonal networks. Despite these efforts, limited extension coverage, inadequate staffing, and disparities in access to communication assets constrain farmers' opportunities to obtain research-based information, particularly in semi-arid regions such as Dodoma.

These challenges are reflected in sorghum production in Dodoma, where average yields remain around one ton per hectare, far below the potential yield of about five tons per hectare. Although sorghum is promoted as a drought-tolerant crop suitable for semi-arid environments, the adoption of improved farming practices remains limited. This study therefore examined the determinants of farmers' information-seeking behaviour and its influence on the adoption of improved farming practices among sorghum farmers in Dodoma.

1.2 Research Objectives

This study examined determinants of information-seeking behaviour and its influence on adoption of improved sorghum practices among farmers in Dodoma, Tanzania. Specifically, it focused on:

- i. To determine the influence of socio-demographic characteristics (sex, age, education, marital status, farm size, and farming experience) on the information-seeking behaviour of sorghum farmers;
- ii. To assess the influence of ownership of communication assets on the information-seeking behaviour of sorghum farmers, and
- iii. To examine the association between information-seeking behaviour and the adoption of improved farming practices among sorghum farmers.

II. LITERATURE REVIEW

2.1 Theoretical Review

The Diffusion of Innovation (DOI) Theory and the Information Seeking Behaviour and Communication Model (ISCM) Model were used in this study to examine how smallholder sorghum farmers in Dodoma, Tanzania, seek and adopt improved farming practices. DOI theory highlights the central role of communication in disseminating new ideas and practices. It views the adoption of innovations, such as improved farming practices, as a process of communication involving various channels (Rogers et al., 2014). In this study, the DOI theory helps to examine how farmers' information-seeking behaviour influences their adoption of new farming practices. It highlights how farmers learn about innovations and decide to adopt them, and as such, it is the most appropriate approach to understanding the adoption process in sorghum farming. The ISCM model (Robson & Robinson, 2013) complements the DOI theory by explaining how farmers actively search for, process, and use information in particular ways. It identifies information triggers (e.g. low crop yields), information sources (e.g. extension services, peers, and media), and obstacles to accessing information (e.g. technological or financial constraints). By using this model, the study can examine how these variables influence farmers' information-seeking behaviours and their adoption of improved farming practices.



2.2 Empirical Review

Empirical evidence shows that farmers' information-seeking behaviour is influenced by socio-demographic and resource-related factors, including age, education, gender, farming experience, income, and ownership of communication assets (Colussi et al., 2022). Younger and more educated farmers are more likely to use digital platforms, whereas older farmers often rely on radio and interpersonal networks. Access to mobile phones, radios, and internet-enabled devices enhances exposure to weather forecasts, market information, and expert advice (Hoang & Tran, 2023; Unay-Gailhard & Simões, 2022). Farmers who own these assets are likely to actively seek and use information to improve their farming practices (Malik & Rathi, 2020). Conversely, limited ownership of communication assets constrains information access and informed decision-making (Mapiye et al., 2023).

These constraints are reflected in sorghum production in Dodoma, where average yields remain around 1 ton per hectare, far below potential levels (Mwamahonje et al., 2021; Simtowe & Mausch, 2018). Although sorghum is a drought-tolerant and strategic food security crop in semi-arid Tanzania (Kangile et al., 2020), adoption of improved practices remains low. While previous studies have examined agricultural information behaviour and innovation adoption in general terms, limited empirical attention has been given to semi-arid contexts such as Dodoma. Understanding how sorghum farmers seek, evaluate, and apply agricultural information is therefore critical. Examining these processes helps identify barriers to effective information use and informs strategies to strengthen extension delivery and communication systems.

This study assessed the information-seeking behaviour of sorghum farmers in Dodoma and its influence on the adoption of improved farming practices. Specifically, it examined the determinants of information-seeking behaviour and its effect on adoption decisions. The findings provide evidence to guide targeted communication and policy interventions aimed at improving productivity and resilience in semi-arid agricultural systems.

2.3 Hypotheses Development

2.3.1 Factors influencing information-seeking behaviour among sorghum farmers

Existing literature identifies socio-demographic and resource-related factors as important determinants of farmers' information-seeking behaviour. However, evidence is not uniform, and effects often vary by context. Rather than operating independently, factors such as age, education, farm size, farming experience, and access to communication assets interact with institutional and socio-economic conditions.

Age is frequently associated with differences in information channels. Studies suggest that younger farmers are more inclined to use digital platforms and experiment with new information sources (Fabregas et al., 2019). Yet, this relationship is mediated by infrastructure and digital literacy. In many African contexts, including East Africa, limited internet penetration and high data costs constrain the practical advantages of youth in accessing digital advisory services (Mapiye et al., 2023; Rwigema, 2020). Thus, age alone may not determine information-seeking intensity; rather, access and capacity shape its effect.

The influence of education on information-seeking behaviour enjoys broad support. Zimmerman and Shaw (2020) and Chang and Huang (2020) highlight that farmers with higher levels of education tend to have better information literacy. This means that educated farmers are more skilled at using different communication channels, which helps them access and utilize important information more effectively. Creissen et al. (2021) adds to this by noting that educated farmers not only seek information but are also likely to be more open to scientifically tested practices. However, studies in East Africa show that even educated farmers may face structural barriers, such as limited extension contact or poor market access (Magesa et al., 2023; Rahman et al., 2020). This suggests that education enhances potential for information seeking, but institutional support determines its realization.

Marital status is another factor that influences how farmers engage in information-seeking. Giroux et al. (2023) indicate that married farmers have the benefit of shared decision-making and shared resources, which can make information-seeking easier and more of a shared endeavour. Rahman et al. (2020) agree and note that a supportive family environment, especially the support of spouses, tends to increase farmers' engagement in seeking agricultural information. However, other scholars such as Mesfin et al. (2023) and Haumba and Kadu (2021) disagree and argue that while family support is useful, individual motivation and access to resources are also vital in stimulating information-seeking behaviours among farmers regardless of whether they are married or not.

Farm size is also a factor in that large farms command more resources, which tends to mean more motivation and capacity for seeking agricultural information (Magesa et al., 2020). Similarly, Tittonell et al. (2020) and Das et al. (2022) agree that large-scale farmers tend to prioritize keeping themselves informed on innovations in order to increase productivity. However, there are also cautionary notes by scholars such as Diemer et al. (2020), that this is not necessarily the case because even smallholder farmers can be motivated to seek information if it will directly assist them in overcoming their resource limitations. Indeed, smallholders tend to be highly resourceful and are capable of accessing information through informal networks and community interactions (Freeman & Qin, 2020; Mbugua et al., 2019).



Consideration of farming experience offers a mixed set of views. Kumar et al. (2020) observe that the more experienced farmers may be less receptive to new information, preferring tried and tested techniques. Acheampong et al. (2021), on the other hand, provide a more nuanced perspective, acknowledging that while experienced farmers may initially resist new methods, they are more likely to adopt them when presented with compelling evidence of their effectiveness, such as through field demonstrations. This, then, would suggest that experience does not always close off farmers from innovativeness but perhaps make them more cautious, particularly in the absence of engagement from trustworthy sources.

Access to communication assets particularly mobile phones and radios has become increasingly central. In East Africa, studies from the region show that mobile-based advisory services improve timely decision-making, especially for weather and market information (Sansa-Otim et al., 2022). Nonetheless, digital divides persist, limiting the inclusiveness of such interventions (McCampbell et al., 2023). In semi-arid regions such as Dodoma, uneven extension coverage further amplifies these disparities. These disparities highlight the need for a theoretical perspective to explain how differences in access and individual characteristics shape information exposure and adoption outcomes.

The Diffusion of Innovations (DOI) theory provides a useful lens for interpreting these dynamics by explaining how individual characteristics shape exposure to information and progression toward adoption. Complementing this, the information seeking and communication model emphasizes that farmers are active agents who deliberately select channels such as extension services, peer networks, and media based on perceived accessibility and credibility. In the Tanzanian context, socio demographic attributes and ownership of communication assets influence both the intensity of information seeking and the effectiveness of communication flows, thereby shaping farmers' movement through the innovation decision stages knowledge, persuasion, decision, implementation, and confirmation. Accordingly, the following hypothesis is proposed:

H₀₁: Sex, age, education, marital status, farm size, farming experience, and ownership of communication assets do not influence information-seeking behaviour of sorghum farmers.

Association between information seeking behaviour and the adoption of improved farming practices among sorghum farmers. A substantial body of research suggests a positive association between active information seeking and technology adoption. Farmers who deliberately engage extension agents, peer networks, and media platforms tend to acquire greater awareness and confidence regarding new practices Sutherland and Marchand (2021) and Cook et al. (2021). The quality, relevance, and credibility of information, as well as socio-cultural compatibility, condition behavioural outcomes. However, empirical findings also caution that access to information does not automatically translate into adoption (Zheng et al., 2022). The quality, relevance, and credibility of information, as well as socio-cultural compatibility, condition behavioural outcomes.

In East Africa, adoption of improved agricultural practices often depends on localized demonstration, peer validation, and trust in extension officers (Morrison, 2023). Social capital plays a critical role, as farmers embedded in strong networks are more likely to share experiences and reduce perceived risks. Social capital plays a critical role, as farmers embedded in strong networks are more likely to share experiences and reduce perceived risks (Silvert et al., 2022). Conversely, Brown et al. (2018) argue that socially isolated farmers may remain hesitant even when information is available. These findings underscore that information-seeking behaviour operates within broader social and institutional ecosystems.

Push and pull factors further complicate this relationship. Economic pressure, climate variability, and declining yields may push farmers to search for alternatives (Acharya & Lillywhite, 2021; Kassie et al., 2018). At the same time, perceived credibility and accessibility of information sources act as pull factors influencing adoption decisions (Yu & Gambrah, 2024). In semi-arid Tanzania, where sorghum is promoted as a climate-resilient crop, these dynamics are particularly salient. This interacting push and pull forces therefore necessitate a theoretical explanation of how information-seeking behaviour translates into movement across the stages of innovation adoption.

The DOI framework clarifies this relationship by emphasizing that information seeking behaviour mainly influences the early stages of the innovation decision process, particularly knowledge and persuasion. The information seeking and communication model complements this by highlighting farmers as active agents who select communication channels based on access, trust, and relevance. Progression to adoption then depends on perceived relative advantage, compatibility, complexity, trialability, and observability. In the Tanzanian extension context, limited demonstration plots and constrained advisory services may weaken these attributes and communication flows, thereby slowing adoption despite active information seeking. While prior research establishes a general link between information behaviour and adoption, limited empirical evidence specifically addresses sorghum farmers in semi-arid regions of Tanzania. This contextual gap justifies examining the relationship within Dodoma, where extension constraints and climate pressures shape farmers' decision environments. Accordingly, the following null hypothesis is proposed:

H0₂: There is no significant association between information seeking behaviour and the adoption of improved farming practices among sorghum farmers.

III. METHODOLOGY

3.1 Description of the Study Area

This study was carried out in Dodoma, Tanzania, which is known for its semi-arid climatic conditions and persistent food insecurity. The cultivation of sorghum is seen as a climate-resilient, nutritious, and sustainable alternative for farmers that supports food security and livelihoods (Amede et al., 2023). Given the region's challenges and sorghum's potential to address food security issues Mwamahonje et al. (2021), it provides an ideal setting to explore how information-seeking behaviour influences the adoption of improved farming practices and contributes to better agricultural decision-making.

3.2 Research Design, Sampling Procedure and Sample Size

This study adopted a cross-sectional design to capture a snapshot of the current situation and examine the relationship between information seeking behaviour and the adoption of improved sorghum farming practices. To ensure a diverse and representative sample, a multi-stage random sampling method was used. First, three districts Kongwa, Kondoa, and Bahi were randomly selected from a pool of seven districts. In the next stage, three wards were randomly chosen from each of the selected districts. Then, three villages were randomly selected from each ward. Finally, households were randomly picked from the lists of households within the chosen villages. The multi-stage, random sampling approach was used to ensure that the sample was both representative and unbiased, capturing a broad range of local contexts. Data were gathered from household heads, who are typically the primary decision-makers in most African communities. Based on the Cochran (1963) formula specifications (equation 1) with $Z=1.96$; $q=0.5$, $p=0.5$, and $e=0.05$ as parameters, the sample size pointed to a minimum number of 384 respondents. However, a sample size of 399 was chosen in the study to allow for non-response, missing data, or outliers - factors that may affect the reliability of findings

$$n_o = \frac{Z^2 pq}{e^2} \quad 1$$

$$n_o = \frac{(1.96^2 \times 0.5 \times 0.5)}{0.05^2} = 384$$

3.3 Data Collection and Analysis

Quantitative data were obtained using a structured questionnaire administered by the researcher. A pre-test of data collection instruments was conducted with 38 sorghum farmers in Mlowa-Barabarani Village, Chamwino district. The goal was to check reliability using Cronbach's alpha for Likert-type scale questions, and all Alphas exceeded 0.7, indicating good internal consistency. We also ensured validity by assessing face validity through a questionnaire overview and content validity by involving experts to review and suggest improvements. This process aimed to enhance the questionnaire's accuracy in measuring intended constructs and improve data quality (Mohd Yusoff & Tengku Ariffin, 2021). Qualitative data were also collected through 15 key informant interviews with extension officers and agricultural experts from TARI. Participants were purposively selected based on their expertise in sorghum production and extension services. The interviews followed a semi-structured guide covering knowledge of improved farming practices, information dissemination strategies, and challenges in adoption. Each interview lasted approximately 45–60 minutes, allowing for in-depth exploration of participants' experiences and perspectives (Creswell et al., 2014).

Quantitative data analysis included descriptive and inferential analysis. With regards to information-seeking behaviour we asked participants to indicate how often they sought agricultural information on improved sorghum farming practices from agricultural information source(s). Farmers were given 5 choices with the codes from 1 to 5. 1=Never, 2= Rarely, 3=Sometimes, 4=Often, 5=Always. The variable information seeking behaviour was later categorized into two groups (non-seekers, and seekers). Those who responded never sought information were termed as non-seeker, while those who responded Rarely, Sometimes, Often, or Always seeking were termed as information seeker. Frequency table summarized the distribution of information-seeking behaviour. A table was drawn to show the proportion of the farmers who were information seekers and non-information seekers for inferential analysis, a linear mixed model was fitted to determine the factors influencing information seeking behaviour. A linear mixed model with sex, age, level of education, marital status, farm size, farming experience, and possession of communication assets as predictors was fitted with information-seeking behaviour as the response variable. The model estimated the coefficient for each of the predictors by assuming their effect to be fixed effects.

Furthermore, the model accounted for potential clustering of farmers within districts by including district-level random effects. This helped to control for unobserved district-level characteristics that could influence information-



seeking behaviour. Variance components for the district-level random effects were estimated, and the intraclass correlation (ICC) was calculated to determine the proportion of variability in information-seeking behaviour attributable to district-level factors. The Linear Mixed Model used to assess the factors influencing information-seeking behaviour among sorghum farmers is given in equation 2:

$$Y_{ij} = \beta_0 + \beta_1 S + \beta_2 A + \beta_3 E + \beta_4 MS + \beta_5 FS + \beta_6 FE + \beta_7 CA + u_j + \varepsilon_{ij} \quad \dots\dots\dots 2$$

Where:

Y_{ij} = Information seeking score represents the level of information-seeking behaviour measured on a scale of 1 to 5. The use of this scale helped to get more information to capture variation in information seeking behaviour across different farmer characteristics. Therefore, Y_{ij} is the outcome variable for the i-th individual in the j-th district. S (Sex), A (Age), E (Education), MA (Marital Status), FS (Farm Size), FE (Farming Experience), CA (Ownership of communication assets) u_j is the random effect for the district, accounting for variability between districts and ε_{ij} is the residual error term for individual-level variability.

A binary logistic regression model was employed to evaluate the association between information-seeking behaviour and the adoption of improved farming practices. The binary outcome variable (adoption vs. non-adoption) was regressed on the key predictor (information seeker vs. non-information seeker), while controlling for covariates such as sex, age, marital status, farm size, farming experience, and perceived credibility of information. Perceived credibility of information was assessed through trustworthiness, reliability, and accuracy of agricultural information. Participants rated the credibility of six information sources on a 5-point Likert scale for each of the three credibility aspects. Three indices were computed, one for each credibility aspect, by summing scores from the six sources. These indices ranged from 6 to 30. An overall credibility index was also calculated by summing the three individual indices, with values ranging from 18 to 90. We expected that for a farmer who respond average credibility (value of 3) for each aspect would have an index of 54 ($3 \times 3 \times 6$), therefore an index > 54 were termed as high perceived credibility, otherwise low. The Binary Logistic Regression Model, in equation 3, was used to assess the association between information-seeking behaviour and the adoption of improved farming practices.

$$\log it(\pi(x)) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \varepsilon_i \quad \dots\dots\dots 3$$

Where;

$\text{Logit}(\pi(x))$ is the logarithm of the odd of a farmer to adopt improved farming practices given covariate (independent variable) x and

x_1 =Sex, x_2 =Age, x_3 =Marital Status, x_4 =Farm Size,

x_5 =Farming Experience, x_6 =Perceived Information Credibility, x_7 =Information Seeking Behavior

ε_i = error term

The odds ratios and their 95% confidence intervals were estimated for each predictor to assess the likelihood of adopting improved farming practices. The primary interest was in the odds ratio associated with information-seeking behaviour, which indicated how the odds of adoption differed between information seekers and non-seekers. The statistical significance of each predictor was tested using Wald tests. The results were presented in a table showing the odds ratios, standard errors, z-values, and p-values for each covariate.

Thematic analysis was used to examine qualitative data. Data were initially transcribed, and important phrases were extracted, coded, and then grouped into themes relating to sorghum farming practices. As analysis progressed, emerging themes were compared and contrasted across different interviewees and were then refined. Patterns in communication strategies emerged through this process, providing an understanding of how farmers' information-seeking behaviours influence farming practices. To ensure data quality Kobo tool box was used during data collection. Validation criteria included in the tool, skipping logic (if the question not for specific individual), and setting questions as mandatory increased data quality by remove the risk of having responses which are out of require range or having missing values (A question cannot be submitted if it has missing value in any of the question) therefore there was no any missing response in the dataset.

3.4 Research Ethical Consideration

Before data collection, ethical clearance was obtained from Moshi Cooperative University (MoCU) and the Office of the Regional Administrative Secretary in Dodoma, authorizing research in three districts across four themes related to communication and adoption of improved sorghum farming practices. Respondents were informed about the

study's objectives, procedures, and benefits, and provided voluntary verbal consent before participating. Participation was entirely voluntary, with the right to withdraw at any time without consequences. Confidentiality and anonymity were strictly maintained, and respondents were informed about how the data would be collected, used, and shared. All data were securely stored to prevent identification of participants. The study was conducted with honesty, integrity, and scientific rigor.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Socio-Demographic Characteristics and Information-Seeking Behaviour

The study findings in Table 1 reveal several socio-demographic factors that influence information-seeking behavior and the adoption of improved farming practices. The results show that 57.14% of the respondents were male and most of them (83.46%) were married, which could affect decision-making dynamics and social support for the adoption of new practices. A high percentage (75.44%) of the farmers had primary education, which could limit their ability to fully grasp complex agricultural information, which could affect the intensity of their engagement with new practices. However, 83.21% of the farmers possessed at least one communication asset, such as a mobile phone, television, or radio, which greatly facilitates access to agricultural information. The mean age of 46.89 years (SD = 13.46) indicates a middle-aged farming population, which suggests a balance between experience and openness to new practices. With a mean of 17.43 years (SD = 11.79) of farming experience, most farmers possess a wealth of practical knowledge. Notably, 81.20% of the farmers proactively sought agricultural information, which indicates their recognition of the role of information in improving farming practices and decision-making. This aligns with Saengavut and Jirasathumb (2021) and Campenhout (2021) who found that access to agricultural information positively influences farmers' decision-making and adoption of technology. Therefore, socio-demographic factors such as education, communication access, and experience play key roles in shaping information-seeking behaviour and, subsequent adoption of improved farming practices.

Table 1

Socio-Demographic Characteristics and Information-Seeking Behaviour

Characteristics		Frequency (n)	Percentage (%)
Sex	Male	228	57.14
	Female	171	42.86
Marital Status	Single/divorced/separated/widowed	66	16.54
	Married	333	83.46
Education Level	No formal education	69	17.29
	Primary education	301	75.44
	Secondary education and above	29	7.27
Communication assets ownership	Yes	332	83.21
	No	67	16.79
Information seeking behaviour	Non-information seeker	75	18.80
	Information seekers	324	81.20
		Mean	Std.Dev
Age (in years)		46.89	13.46
Farm Size (in acres)		2.16	0.62
Farming Experience (in years)		17.43	11.79

4.1.2 Factors Influencing Information-Seeking Behaviour among Sorghum Farmers

The linear mixed model estimates in Zheng et al. (2021) reported that geographical location could have an effect on access to agricultural information. Farmers in rural locations are disadvantaged by lack of infrastructure and connectivity, while those in urban and peri-urban locations are benefited by closeness to research institutions and extension agents. The absence of geographical variation in this study could reflect relatively homogeneous access to communication assets and education throughout the study area or dominance of individual over geographical factors. The finding suggests the need for targeted interventions that focus on improving individual access to education and communication technologies.

Table 2 provide the most crucial explanations for the determinants of information-seeking behaviour among sorghum farmers. The level of education and access to communication resources were the strongest predictors. Farmers with higher levels of education were more inclined to search for agricultural information ($\beta = 0.296$; $p = 0.008$), thereby rejecting the null hypothesis that education does not influence information-seeking behaviour. This aligns with existing

literature Sisay et al. (2023) and Babu and Glendenning (2019) that argues education raises the ability of farmers to learn and evaluate new technologies, thereafter improving their capacity to seek information. Further, key informant interview observations confirmed that better-educated farmers sought agricultural information more actively, with greater interest in extension services and digital media. These results highlight the contributions of literacy and education campaigns in empowering farmers to access and use agricultural knowledge, and advocate for targeted interventions to ensure information is well disseminated and made accessible to farmers of varying education levels.

Ownership of communication assets such as mobile phones, radios, or televisions had a positive effect on information-seeking behaviour ($\beta = 0.749$; $p < 0.001$). This confirms the imperative role played by communication tools in accessing agricultural information. The finding validates the rejection of the null hypothesis that ownership of communication assets has no influence on information-seeking behaviour of sorghum farmers. Krell et al. (2021) also reported that mobile phones improved farmers' access to various agricultural information. Similarly, Király et al. (2023) and Mbaya (2023) showed that digital platforms allow farmers to connect with agricultural experts, further enhancing their information-seeking potentials. This was also confirmed by key informants, who asserted that ownership of mobile phones has significantly improved farmers' access to agricultural information, allowing real-time updates and direct contact with experts and peers, and consequently enhancing decision-making.

In contrast, demographic factors such as gender, age, marital status, farm size, and farming experience years did not significantly influence information-seeking behaviour in this study. There is not enough evidence against the null hypothesis for these factors in this study. Prior studies, nevertheless, show these factors can still be significant in another context. For instance, Balayar and Mazur (2022) noted that socio-cultural barriers linked to gender can affect access to agricultural information. Farming experience, highlighted by Rahman et al. (2020) as a possible determinant of the type of information sought, did not show significance here, likely due to this study's unique context.

Random effects showed minimal variation between districts ($\sigma^2 = 0.059$, 95% CI: 0.003, 1.004), with an intraclass correlation coefficient (ICC) of 0.003. It suggests that district-level factors had minimal effect on information-seeking behaviour of sorghum farmers. Instead, individual-level factors like education and communication devices appeared more significant. Contrastively, Liu et al. (2021) and Zheng et al. (2021) reported that geographical location could have an effect on access to agricultural information. Farmers in rural locations are disadvantaged by lack of infrastructure and connectivity, while those in urban and peri-urban locations are benefited by closeness to research institutions and extension agents. The absence of geographical variation in this study could reflect relatively homogeneous access to communication assets and education throughout the study area or dominance of individual over geographical factors. The finding suggests the need for targeted interventions that focus on improving individual access to education and communication technologies.

Table 2

Linear Mixed Model Results: Factors Influencing Information-Seeking Behaviour among Sorghum Farmers (N = 399)

Fixed effect		Coefficient	Std. error	t	P>t	95% Conf. Int.
Sex	Female	Ref	-	-	-	-
	Male	-0.109	0.114	-0.95	0.341	-0.333, 0.115
Age		-0.001	0.005	-0.18	0.860	-0.011, 0.009
Education level		0.296	0.111	2.67	0.008	0.079, 0.514
Marital status	Not Married	Ref	-	-	-	-
	Married	0.205	0.149	1.38	0.169	-0.087, 0.496
Farm size (in acres)		0.021	0.02	1.08	0.279	-0.017, 0.06
Farming experience (in years)		0.004	0.006	0.75	0.451	-0.007, 0.016
Communication assets ownership	No	Ref	-	-	-	-
	Yes	0.749	0.146	5.13	<0.001	0.463, 1.035
Random effect		Estimate	Std. err			95% Conf. Int.
Var (Districts), σ_u^2		0.059	0.085			0.003, 1.004
Var (Residual), σ_e^2		0.993	0.035			0.927, 1.065
Intraclass correlation (ICC)		0.003	0.010			0.000, 0.508

4.1.3 Association between information seeking behaviour and the adoption of improved farming practices among sorghum farmers

The findings in Beaman et al. (2021) highlight how social connections can facilitate the flow of information and increase the likelihood of adopting new practices. These studies suggest that community dynamics may have a basic, but unexamined, role in shaping adoption behaviours.

This study highlights the priority of information-seeking behaviour and information credibility in shaping the adoption of improved farming practices. Key informant feedback emphasizes that farmers who have a tendency to seek credible information, especially from trustworthy sources like peers or extension officers, are more likely to adopt new practices. While there were some demographic and regional factors that appeared less relevant in this study, the findings point to the need for further research to arrive at a more sophisticated understanding of the multi-faceted variables that impact adoption, particularly in areas with distinct socio-economic challenges.

Table 3 reveal a strong link between information-seeking behaviour and the adoption of improved farming practices, which is corroborated by a significant odds ratio of 4.03 (95% CI: 2.116, 7.678; $p < 0.001$). This indicates that farmers who had a tendency to seek agricultural information had four times odd of adopting improved practices compared to farmers who had no tendency of seeking information. This result is in conformity with Maqbool et al. (2023) who revealed a similar trend where proactive information-seeking increases farmers' awareness of innovative agricultural technologies and their respective advantages. Moreover, Diemer et al. (2020) corroborate this finding, demonstrating that actively seeking information significantly increases the likelihood of adopting modern farming techniques.

Information credibility of what is received also assumes a central position in influencing adoption. The research shows that a high degree of perceived credibility of the received information significantly increases the likelihood of adoption (OR = 2.79, 95% CI: 1.338, 5.822; $p = 0.006$). The finding is consistent with the observation of Skaalsveen et al. (2020) who noted that farmers are likely to adopt practices if they trust the sources of their information. The argument is also consistent with Rust et al. (2022) and Bavorová et al. (2020) which noted that credible sources of information increase farmers' trust in new practices, thereby enabling adoption.

Farming experience positively influences the adoption of improved practices, with an additional year of experience slightly increasing the chance of adoption (OR = 1.06, 95% CI: 1.022, 1.096; $p = 0.001$). This finding is consistent with Landini (2021), who elucidated that experienced farmers are generally better placed to evaluate and adopt new practices as they have developed knowledge and skills over time. Nettle et al. (2022) also determined that experienced farmers are more adept at perceiving the daily applications of new technologies, further confirming the influence of experience on the adoption process.

Conversely, the research also reveals some nuances regarding non-significant factors. It found that sex, age, marital status, and farm size did not have statistically significant relationships with the adoption of improved practices. This contradicts with Giua et al. (2022), who posit that such demographic variables can indeed have a role in influencing adoption decisions through their effects on access to resources and information. Additionally, Dapilah et al. (2020) emphasize the role of social networks and community dynamics in the adoption process, variables not adequately captured in the controlled variables of this study's model. Similarly, Beaman et al. (2021) highlight how social connections can facilitate the flow of information and increase the likelihood of adopting new practices. These studies suggest that community dynamics may have a basic, but unexamined, role in shaping adoption behaviours.

This study highlights the priority of information-seeking behaviour and information credibility in shaping the adoption of improved farming practices. Key informant feedback emphasizes that farmers who have a tendency to seek credible information, especially from trustworthy sources like peers or extension officers, are more likely to adopt new practices. While there were some demographic and regional factors that appeared less relevant in this study, the findings point to the need for further research to arrive at a more sophisticated understanding of the multi-faceted variables that impact adoption, particularly in areas with distinct socio-economic challenges.

Table 3

Binary Logistic Model Results: Assessing the Association between Information-Seeking Behaviour and Adoption of Improved Farming Practices Among Sorghum Farmers (N = 399)

Factor		Odds ratio	Std. err	z	P>z	95% Conf. Int.
Sex	Female	Ref	-	-	-	-
	Male	1.16	0.393	0.44	0.657	0.599, 2.255
Age		0.98	0.014	-1.49	0.138	0.953, 1.007
Marital status	Not married	Ref	-	-	-	-
	Married	0.43	0.209	-1.73	0.083	0.168, 1.116
Farm size (in acre)		0.97	0.058	-0.52	0.6	0.861, 1.09
Farming experience (in years)		1.06	0.019	3.19	0.001	1.022, 1.096
Perceived information credibility	Low	Ref	-	-	-	-
	High	2.79	1.047	2.74	0.006	1.338, 5.822
Information seeking behaviour	Non-seekers	Ref	-	-	-	-
	Seekers	4.03	1.325	4.24	0	2.116, 7.678



V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study highlights the pivotal role played by information-seeking behaviour in the adoption of improved farming practices by sorghum farmers. The primary findings indicate that education levels and ownership of communication assets contribute positively towards the likelihood of farmers seeking agricultural information. Those who were actively seeking information were also identified as being four times as likely to adopt improved practices, validating the relationship between active information seeking and innovation adoption. The credibility of sources of information also influences this relationship, with credible information enhancing the chances of adoption. Demographic factors such as sex, age, marital status, and farm size were not significant in influencing adoption behaviours, suggesting that community dynamics and social networks may play a more crucial role than initially assumed. Overall, the findings beckon the implementation of focused education and communication strategies to uplift the farmers, enhancing agricultural productivity and sustainability in the long run. Further study is invited to explore the multi-faceted determinants of adoption in diverse socio-economic settings.

5.2 Recommendations

The study recommends that policymakers, agricultural extension services, NGOs, and farmers improve access to information through easy-to-use channels like mobile applications and community radio. The extension services must organise training to encourage information-seeking habits among farmers. Stakeholders must ensure credible information dissemination through coordination with experts and periodic reviews. Farmers must be trained in modern communication tools to encourage digital literacy, especially in rural areas. Community leaders and NGOs must encourage the formation of farmer groups for knowledge exchange. Programmes must address the unique interests of heterogeneous groups, e.g., women and young farmers. Continued monitoring of adoption patterns and intervention impact is important for the identification of best practices. Lastly, coordination between government agencies, NGOs, and the private sector is required for the formulation of a comprehensive approach to agricultural development, maximising resource sharing and effectiveness of information dissemination initiatives.

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Managerial competencies of governing council members in Ghanaian universities: A comparative analysis of public and private sector perspectives

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ABSTRACT

Despite the expanded statutory powers and strategic responsibilities of governing councils in both public and private universities, empirical attention has been limited to the managerial competencies that enable councils to function effectively across diverse institutional contexts. This study examines the managerial competencies of governing council members in selected public and private universities in Ghana. Anchored in institutional and corporate governance theories, the study employed a qualitative comparative case-study design to examine the managerial competencies of governing council members at public and private universities in Ghana. The study population comprised governing council members of public and private universities in Ghana, including chairpersons, external members, internal members (senior academics), and representatives of key stakeholder groups. Data were collected through semi-structured interviews with 29 participants, including governing council members and key institutional actors in selected public and private universities, and analysed thematically to identify patterns and variations in managerial competencies. Six interrelated themes emerged: strategic leadership and visioning; financial and resource management; risk management and institutional sustainability; decision-making and governance flexibility; professional expertise and experience; and ethical leadership and accountability. While council members in both sectors demonstrated strong commitment to governance roles, private university councils showed greater agility in decision-making, financial oversight, and performance monitoring. In contrast, public university councils were more constrained by bureaucratic processes, political influence, and regulatory controls but exhibited a stronger orientation toward public accountability and policy compliance. The study positions managerial competencies as a central analytical framework for examining the effectiveness of university governance in Ghana. It offers policy-relevant insights to strengthen governing councils through targeted capacity-building, merit-based appointments, and context-sensitive governance reforms across public and private higher education institutions.

Keywords: Ghana, Governing Council Members, Managerial Competencies, Public and Private Universities, University Governance

I. INTRODUCTION

University governance has become a central concern in higher education systems worldwide, particularly in contexts characterised by massification, financial constraints, regulatory complexity, and heightened public accountability. In Ghana, public and private universities operate within an increasingly turbulent higher education environment shaped by policy reforms, market pressures, political interference, and growing stakeholder expectations for efficiency, transparency, and quality outcomes (Manuh et al., 2007; Dinye & Boon, 2023). At the apex of institutional governance structures are university governing councils, which serve as the highest decision-making bodies responsible for strategic direction, policy formulation, financial oversight, leadership appointments, and accountability assurance (Bingab et al., 2018; Dinye & Boon, 2023).

The effectiveness of governing councils is closely linked to the managerial competencies of their members, particularly in areas such as strategic thinking, financial management, policy oversight, risk management, stakeholder engagement, and ethical leadership (Altbach, 2010; Owusu, 2023). In Ghana, governance reforms have significantly expanded the powers and responsibilities of university councils, including authority over senior leadership appointments, institutional autonomy, and resource mobilisation, thereby intensifying the demand for high-level managerial capacity among council members (Bingab et al., 2018; Agomor, 2024). These expectations apply across both public and private universities, although the governance contexts, regulatory pressures, and resource conditions differ substantially between the two sectors (Tetteh & Ofori, 2010; Alomenu, 2023).

Empirical studies suggest that weaknesses in university governance in Ghana are often associated with limited managerial expertise, ineffective committee functioning, role ambiguity, politicisation, and inadequate training of council members (Okofu-Darteh & Asamoah, 2021; Obeng-Sarpong et al., 2020). Research has also highlighted



challenges related to council independence, accountability enforcement, and leadership effectiveness, particularly in public universities where state influence remains significant (Okyere et al., 2025; Bingab et al., 2018). In private universities, governing boards face additional pressures related to financial sustainability, leadership succession, and transformational capacity, which similarly demand strong managerial competence (Boateng, 2014; Bondzi-Simpson & Agomor, 2021).

Despite the centrality of governing councils to university performance, there remains limited systematic analysis of the specific managerial competencies of council members and how these competencies differ between public and private universities in Ghana. Existing studies tend to focus broadly on governance structures, leadership challenges, or policy reforms, rather than on the skill sets, capacities, and functional effectiveness of council members themselves (Tetteh & Ofori, 2010; Dinye & Boon, 2023). This gap constrains efforts to strengthen governance practice, design targeted capacity-building interventions, and align council performance with contemporary higher education governance standards.

1.1 Statement of the Problem

Governing councils in Ghanaian universities occupy a pivotal role in institutional governance, yet growing evidence suggests that their effectiveness is constrained by gaps in managerial competence, role clarity, and governance capacity. Although councils are legally mandated to oversee policy, finance, leadership, and strategic direction, many council members are appointed based on political affiliation, representational considerations, or professional status rather than demonstrated managerial expertise in higher education governance (Bawakyillenuo et al., 2013; Bingab et al., 2018). This raises concerns about their ability to navigate the complex managerial demands of modern universities in Ghana.

Studies have documented governance challenges such as weak accountability enforcement, ineffective committee operations, limited strategic oversight, and poor coordination between councils and management, all of which are linked to deficiencies in managerial competencies (Okof-Darteh & Asamoah, 2021; Obeng-Sarpong et al., 2020). In multi-campus and rapidly expanding institutions, these challenges are further compounded by decentralisation pressures and resource constraints, intensifying the need for competent council leadership (Dinye & Boon, 2023). Additionally, council independence and decision-making autonomy are often undermined by political interference and regulatory ambiguities, particularly in public universities, placing additional demands on the managerial judgment and ethical leadership of council members (Okyere et al., 2025).

While private universities operate with greater autonomy, their governing councils face distinct managerial challenges related to financial sustainability, strategic agility, leadership succession, and institutional credibility, which similarly require advanced governance competencies (Boateng, 2014; Bondzi-Simpson & Agomor, 2021). However, comparative evidence on how managerial competencies differ between public and private university council members remains sparse. The absence of such evidence limits policy-driven reforms, capacity-building initiatives, and the development of governance frameworks tailored to Ghana's diverse higher education landscape.

Consequently, there is a critical need for systematic empirical inquiry into the managerial competencies of governing council members in both public and private universities in Ghana, with particular attention to how these competencies influence governance effectiveness, accountability, and institutional performance. The following research question guided the study.

1.2 Research Question

How do the various dimensions of managerial competencies shape governance effectiveness in public and private universities in Ghana?

II. LITERATURE REVIEW

2.1 Theoretical Review

This study is grounded in Institutional Theory and Corporate Governance Theory to explain how managerial competencies shape the effectiveness of university governing councils. Institutional theory emphasises how organisational behaviour is influenced by regulatory, normative, and cultural-cognitive pressures, suggesting that governing council practices are shaped by legal mandates, political expectations, and sectoral norms within Ghana's higher education system (Manuh et al., 2007; Bingab et al., 2018). Corporate governance theory, particularly the stewardship and agency perspectives, highlights the role of governing councils in balancing oversight, strategic direction, and accountability while aligning institutional goals with stakeholder interests (Altbach, 2010; Bingab et al., 2018).

Managerial competencies such as strategic thinking, financial oversight, risk management, ethical judgment, and stakeholder engagement are therefore conceptualised as critical mediating factors between formal governance structures and actual governance outcomes. Within this framework, variations in governance effectiveness between



public and private universities are understood as products of both institutional constraints and the managerial capacity of council members (Tetteh & Ofori, 2010; Dinye & Boon, 2023).

2.2 Empirical Review

2.2.1 University Governance and the Role of Governing Councils

University governance refers to the structures, processes, and relationships through which higher education institutions are directed, controlled, and held accountable. In Ghana, governing councils constitute the apex governance bodies responsible for strategic direction, policy formulation, financial oversight, leadership appointments, and institutional accountability (Bingab et al., 2016; Dinye & Boon, 2023). Governance reforms over the past two decades have expanded council powers, particularly in public universities, thereby increasing expectations regarding their managerial and strategic capacity (Agomor, 2024).

Empirical studies highlight that governing councils operate within complex and often turbulent environments characterised by massification, funding constraints, regulatory pressures, and political interference (Manuh et al., 2007; Obeng-Sarpong et al., 2020). Tetteh and Ofori (2010) observe that councils in both public and private universities face challenges in balancing academic traditions with managerial demands, underscoring the importance of professional governance competence. Similarly, Bingab et al. (2018) emphasise that councils are expected to uphold accountability, ensure prudent resource use, and safeguard institutional autonomy, roles that require strong managerial judgment.

Recent scholarship has also drawn attention to council independence and role ambiguity, particularly in public universities. Okyere et al. (2025) argue that political influence and regulatory overlaps often constrain councils' autonomy in decision-making, weakening governance effectiveness. These studies collectively suggest that, while governing councils are central to university governance in Ghana, their effectiveness depends on the managerial competencies of their members and the institutional environments in which they operate.

Table 1

Ghanaian Governance Studies with their Foci, Methods, and Findings to Demonstrate the Gap this Study Addresses

Authors/Year	Study focus	Method/Approach	Key Findings	Implications for current study (Gap)
Manuh et al. (2007)	Governance reforms and policy transformations in Ghanaian higher education	Policy analysis and institutional review	Identified the effects of policy reforms on university governance structures and highlighted tensions between state control and institutional autonomy.	Focused largely on system-level reforms, with limited attention to competency requirements of governing council members.
Bingab et al. (2016)	Governance structures and accountability in Ghanaian public universities	Conceptual and policy analysis	Demonstrated that governing councils are responsible for accountability, financial oversight, and safeguarding institutional autonomy	Emphasises roles and responsibilities of councils but does not examine the managerial competencies enabling these roles.
Bingab et al. (2018)	Accountability and financial governance in higher education institutions	Qualitative institutional analysis	Found that governing councils must exercise prudent resource management and ensure transparency in institutional decision-making.	Focus remains on accountability mechanisms, not the skills or competencies of council members that shape governance outcomes.
Obeng-Sarpong et al. (2020)	Governance challenges in Ghanaian universities	Qualitative case analysis	Highlighted how funding constraints, massification, and governance complexity affect institutional performance.	Identifies contextual governance pressures, but does not analyse competency-based governance capacity
Tetteh & Ofori (2010)	Balancing academic traditions and managerial governance	Conceptual discussion with institutional examples	Observed tensions between collegial academic governance and managerial	Suggests the need for governance competence but does not empirically examine governing council competencies



Dinye & Boon (2023)	Governance structures and council responsibilities in universities	Policy and governance review	Described governing councils as apex decision-making bodies responsible for institutional direction and oversight.	Provides structural insights but lacks empirical investigation of competency dimensions of council members
Agomor (2024)	Governance reforms and council authority in Ghanaian universities	Policy analysis	Shows that governance reforms have expanded council authority and responsibilities in public universities	Highlights growing governance demands but does not explore the competencies required to meet them.
Okyere et al. (2025)	Political influence and governance autonomy in public universities	Qualitative governance analysis	Found that political interference and regulatory overlaps often constrain councils' autonomy and decision-making effectiveness	Identifies structural constraints but does not directly analyse the managerial competencies of council members.

The reviewed Ghanaian studies predominantly focus on institutional governance structures, regulatory frameworks, political influence, and accountability mechanisms. While these studies provide valuable insights into systemic governance challenges, they rarely examine the competency dimensions of governing council members themselves. Consequently, there is limited empirical understanding of how managerial competencies such as strategic leadership, financial oversight, ethical governance, and stakeholder engagement shape governance effectiveness within Ghanaian universities.

This study addresses this gap by empirically examining the managerial competencies of governing council members across public and private universities, thereby shifting the analytical focus from structural governance arrangements to the competency capacities of the actors responsible for governance decisions. This provides a new competency-based perspective on strengthening university governance in Ghana's higher education system.

2.2.2 Managerial Competencies in Higher Education Governance

Managerial competency in governance and leadership research refers to the integrated knowledge, skills, values, and behavioural capabilities that enable individuals to perform governance responsibilities effectively within specific organisational contexts. In higher education, these competencies are shaped by the hybrid nature of universities as academic communities, professional bureaucracies, and entrepreneurial organisations. As a result, governing council members require competencies such as strategic thinking, financial literacy, risk oversight, ethical leadership, deliberative decision-making, and stakeholder engagement, while also respecting academic values like collegiality, academic freedom, and institutional autonomy (Altbach, 2010; Owusu, 2023).

Empirical studies show that governance effectiveness depends not only on formal structures but also on interpersonal and deliberative competencies. For instance, trust, effective communication, role clarity, and leadership competence significantly influence committee effectiveness in Ghanaian public universities (Okofe-Darteh & Asamoah, 2021), while governance quality has been linked to service delivery and students' perceptions of institutional management (Alomenu, 2023). However, research also highlights persistent competency gaps, where weak managerial capacity leads to poor accountability enforcement, limited strategic oversight, and misalignment between institutional priorities and governance decisions (Obeng-Sarpong et al., 2020). These gaps are further compounded by factors such as political interference, short leadership tenures, and limited governance training (Owusu, 2023).

Importantly, managerial competencies in higher education differ from corporate governance competencies, which typically prioritise profit maximisation and shareholder value. University governing councils operate within broader public and academic accountability frameworks, requiring them to balance institutional autonomy, academic standards, financial sustainability, and diverse stakeholder interests. Since many governance actors are appointed based on academic reputation rather than managerial training, gaps in strategic management capacity may emerge (Altbach, 2010). Consequently, managerial competencies in higher education governance should be understood as hybrid and contextually embedded capabilities that integrate managerial expertise with academic stewardship and public accountability.

2.2.3 Comparative Governance Contexts of Public and Private Universities in Ghana

Public and private universities in Ghana operate within different governance environments, which shape the managerial competencies required of their governing councils. These differences can be understood across several dimensions, including regulatory control, accountability structures, financial pressures, decision-making autonomy, and strategic orientation.



Public universities function within state-regulated governance systems, where councils operate under statutory frameworks and are accountable to government ministries and national regulatory bodies. Consequently, council members require competencies related to policy interpretation, regulatory compliance, and stakeholder mediation to navigate bureaucratic and political oversight (Bingab et al., 2018; Okyere et al., 2025). In contrast, private universities enjoy greater governance autonomy, though they remain subject to accreditation and quality assurance processes. Their councils, therefore, require competencies such as strategic agility, entrepreneurial leadership, and institutional growth management to remain competitive in the higher education market (Boateng, 2014; Bondzi-Simpson & Agomor, 2021).

The two sectors also differ in accountability structures and financial pressures. Public universities are accountable to a broad range of stakeholders, including government agencies, faculty, students, and the public, requiring competencies in consensus-building, deliberative governance, and conflict management. Private universities, however, often operate under more centralised ownership or trustee structures, where governance decisions emphasise performance monitoring, strategic planning, and market positioning. Financially, public universities rely partly on state funding and must comply with public financial regulations, whereas private universities depend heavily on tuition revenue and private investment, making financial sustainability and cost efficiency critical governance concerns (Bondzi-Simpson & Agomor, 2021).

Differences also exist in decision-making autonomy and strategic orientation. Public university councils operate within bureaucratic decision-making systems that emphasise procedural accountability but may limit organisational agility. Private university councils typically have greater flexibility, allowing them to prioritise innovation, strategic foresight, and organisational change management. Moreover, public universities generally focus on national development, knowledge production, and public service, while private universities emphasise market responsiveness and institutional competitiveness (Tetteh & Ofori, 2010; Alomenu, 2023).

Despite these sectoral differences, governance challenges related to council composition, expertise, and capacity persist across both sectors. Weaknesses in councils' professional diversity and governance capabilities can undermine alignment between higher education outputs and national development priorities (Bawakyillenuo et al., 2013). Overall, these variations highlight the importance of adopting a comparative perspective when analysing managerial competencies in university governance, as council effectiveness depends on the interaction between competencies and institutional governance contexts.

III. METHODOLOGY

3.1 Research Design

The study adopted a qualitative comparative case study design to explore and compare the managerial competencies of governing council members in public and private universities in Ghana. This design was appropriate because the study sought to generate in-depth, context-sensitive insights into governance practices, decision-making processes, and competency enactment rather than to test hypotheses or measure variables quantitatively. A qualitative approach enabled the researcher to capture the lived experiences, perceptions, and interpretations of council members operating within different institutional and regulatory contexts (Yin, 2018; Creswell & Poth, 2016). The comparative dimension allowed for systematic examination of similarities and differences between public and private university governance environments, thereby strengthening the analytical contribution of the study.

3.2 Study Sites and Site Selection

The study was conducted in selected public and private universities in Ghana. Universities were purposively selected to ensure diversity in ownership (public/private), institutional age, size, and governance complexity. Public universities included long-established, state-funded institutions operating under strong regulatory oversight, while private universities included both faith-based and non-faith-based institutions with greater managerial autonomy. The public universities included the University of Ghana, Kwame Nkrumah University of Science and Technology, Kumasi, and the University of Cape Coast, while the private universities included Valley View University, Central University, and Ashesi University. The following criteria guided site selection: the existence of a formally constituted governing council, the council's active involvement in strategic, financial, and leadership decisions, and the institution's willingness to grant council members access. This ensured that the selected sites provided rich and relevant data on governing council competencies across governance contexts.

The study sought to produce theoretically informed, context-sensitive insights into how governing council members apply their managerial skills across diverse governance situations, rather than projecting findings to the entire Ghanaian higher education sector. The study's focus on six reputable universities enabled it to pinpoint sector-specific variations and recurring competency patterns, yielding findings that could be analytically extrapolated to comparable governance frameworks and higher education systems in Ghana.



3.3 Population and Sampling

The study population comprised governing council members of public and private universities in Ghana, including chairpersons, external members, internal members (senior academics), and representatives of key stakeholder groups. A purposive sampling strategy was employed to select participants with direct experience in university governance and strategic decision-making (Patton, 2015). To enhance diversity and analytical depth, the sample included council members with academic backgrounds, members with corporate, legal, financial, and public administration expertise, and representatives from regulatory or government-affiliated bodies (where applicable).

In total, twenty-nine governing council members from both public and private universities were interviewed until saturation was achieved, that is, when no new conceptual insights were emerging from additional data (Guest et al, 2017). (See Appendix I)

3.4 Data Collection Methods

The primary method employed for the data collection was semi-structured, in-depth interviews with governing council members from selected public and private universities in Ghana. Semi-structured interviews were considered appropriate because they allowed participants to reflect critically on their governance roles, managerial responsibilities, and decision-making experiences while providing flexibility to probe emerging issues relevant to university governance. An interview guide was developed around key domains of managerial competence, including strategic leadership, financial oversight, risk management, decision-making autonomy, ethical leadership, and stakeholder engagement. Interviews were conducted face-to-face and, where necessary, via secure virtual platforms, depending on participants' availability. Each interview lasted between 45 and 75 minutes and was audio-recorded with participants' informed consent.

3.5 Data Analysis

Data analysis followed a thematic analysis approach, guided by Braun and Clarke's (2006) six-phase framework. This approach was appropriate given the exploratory and comparative nature of the study and its focus on identifying patterns of managerial competence across institutional contexts. First, all interview recordings were transcribed verbatim and read repeatedly to achieve immersion and familiarity with the data. Initial coding was conducted inductively, focusing on participants' descriptions of governance roles, decision-making practices, competencies, and constraints. Codes were then compared across transcripts and grouped into broader conceptual categories related to managerial competence.

In the next phase, codes were refined and clustered into analytically coherent themes, ensuring that each theme was internally consistent and distinct from others. Throughout this process, data from public and private universities were analysed both within cases and across cases to identify sector-specific patterns and contrasts. Six core themes emerged from the analysis, capturing the dominant dimensions of managerial competence exercised by governing council members. NVivo qualitative data analysis software was used for coding hierarchy, memo writing, and query functions. Eventually, the NVivo supported systematic coding, retrieval, and comparison of data, thereby enhancing analytic transparency and dependability.

3.6 Ethical Considerations

Ethical clearance was secured from the University of Cape Coast Institutional Review Board before the commencement of data collection. The study was conducted in strict accordance with established ethical principles. Informed consent was obtained by clearly explaining the study's purpose, procedures, and the voluntary nature of participation to all respondents. To safeguard confidentiality and anonymity, participants were assigned pseudonyms, and all identifying information was excluded from interview transcripts and research outputs. Particular attention was given to the principle of non-maleficence, ensuring that the research process did not cause harm to participants or their institutions, especially in light of the sensitive nature of governance-related discussions. In reporting the findings, interview excerpts were referenced in line with APA personal communication guidelines, using participant pseudonyms and approximate interview dates.

3.7 Trustworthiness

The trustworthiness of the study was ensured through the criteria of credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985). Credibility was enhanced through prolonged engagement, interviews, and the use of direct participant quotations. Transferability was supported through a thick description of institutional contexts and governance environments. Dependability was ensured by maintaining a clear audit trail of research decisions and analytic processes. Confirmability was strengthened through reflexive journaling to address potential researcher bias.

Member checking was methodically used as a validation tool to enhance the study's trustworthiness. A subset of participants, chosen from both public and private university governing councils, received succinct summaries of the



interpreted findings and chosen thematic representations following the initial theme analysis. In order to determine whether the interpretations appropriately represented their experiences, goals, and governance realities, participants were asked to assess them. Feedback confirmed the validity of the analytical interpretations by mostly focusing on contextual nuance clarification rather than substantial disagreement with the themes. Participants' suggestions for improvements or contextual explanations were taken into account in the final analysis. This iterative procedure decreased the possibility of researcher misinterpretation and guaranteed that the results were based on participants' actual governance experiences. (Lincoln & Guba, 1985).

3.8 Researcher Positionality

None of the chosen public or private universities that were part of the study had any connection to the researcher. Both methodological benefits and introspective obligations were provided by this outsider positionality. On the one hand, by lowering power imbalances, role conflict, and institutional allegiance that can affect participant answers, non-affiliation improved analytical independence. Given that the researcher had no official affiliation with their institutions, participants seemed more open to discussing issues of governance, political influence, budgetary limitations, and council dynamics.

However, the researcher continued to be cognizant of the possible drawbacks of external position, especially the possibility of misinterpreting institution-specific governance cultures. The researcher triangulated interpretations through member checking, kept reflective analytical diaries, and spent a lot of time interacting with the data to lessen this. By ensuring that results came from participant narratives rather than the researcher's presumptions, this reflexive approach improved confirmability.

IV. FINDINGS & DISCUSSION

4.1 Findings

This study examined differences between managerial competencies of governing council members of public and private universities. A thematic analysis of participant narratives produced six overarching themes: (1) Strategic leadership and direction setting, (2) Financial oversight and resource management, (3) Risk management and institutional sustainability, (4) Decision-making autonomy and governance flexibility, (5) Professional expertise, experience, and role interpretation, (6) Ethical leadership, accountability and stakeholder engagement. Each theme is presented with illustrative verbatim quotations. All participants are identified using pseudonyms to ensure anonymity.

4.1.1 Strategic Leadership and Direction-Setting

Governing council members in both public and private universities demonstrated competence in strategic thinking and long-term planning. Council members contributed to institutional visioning, approval of strategic plans, and oversight of major policy decisions. However, private university councils exhibited stronger strategic agility, characterised by faster decision-making, clearer performance targets, and a market-oriented focus on growth, competitiveness, and sustainability. In contrast, public university councils exhibited more deliberative, consensus-driven strategic processes, often constrained by bureaucratic procedures, statutory requirements, and government oversight. While this ensured procedural legitimacy, it sometimes slowed responsiveness to emerging challenges.

Public University Council Members

"Our responsibility is to protect the university's long-term vision, but every strategic action must comply with national policy and legal requirements, which occasionally slows implementation." "Even if it takes longer, strategic decisions undergo thorough consultations to guarantee legitimacy and inclusivity." (PUC3, personal communication, 7th June, 2025).

Private University Council Members

"We are extremely careful about our strategy because it is essential to our survival; we cannot afford to be slow in reacting to enrollment and market trends. The council actively sets direction and anticipates that management will produce quantifiable results within precise timeframes." (PRUC6, personal communication, 15th August, 2025).

Strategic leadership decisions inevitably carry financial implications; therefore, the capacity to set direction is closely tied to councils' competencies in financial oversight and resource management.

4.1.2 Financial Oversight and Resource Management

Financial management emerged as a core competency across both sectors, with council members actively engaging in budget approvals, audit reviews, and financial accountability discussions. Notably, private university councils displayed stronger hands-on financial oversight, driven by institutional dependence on internally generated funds, tuition revenue, and donor support. Council members in private universities were more likely to interrogate expenditure efficiency, cost recovery strategies, and revenue diversification initiatives. In public universities, although



council members possessed strong financial literacy, financial oversight was often moderated by state funding structures, procurement regulations, and external audit controls, which limited flexibility but reinforced accountability.

Public University Council Members

"We closely examine budgets, yet public procurement laws and government funding systems restrict our options. Because public monies are involved and external audits are inevitable, financial responsibility is crucial (PUC9, personal communication, 5th July, 2025).

Private University Council Members

"Tuition fees and domestically generated revenues are our livelihood, thus every financial action is constantly watched. The council regularly raises concerns about revenue diversification and cost effectiveness; financial restraint is unavoidable" (PRUC8, personal communication, 15th August, 2025).

Financial oversight practices also shape how councils anticipate and manage institutional risks, linking fiscal prudence to broader sustainability concerns.

4.1.3 Risk Management and Institutional Sustainability

Risk awareness and mitigation strategies were evident in both public and private universities. Governing councils assessed risks related to enrolment fluctuations, staff retention, infrastructure deficits, and reputational threats. Private university councils demonstrated greater risk sensitivity, particularly regarding enrolment sustainability, competition, accreditation status, and financial viability. Consequently, they were more proactive in adopting entrepreneurial strategies and innovation-led solutions. Public university councils focused more on reputational risk, labour relations, and political exposure, reflecting their embeddedness within the public sector governance architecture.

Public University Council Members

"Our biggest threats include industrial strikes, political influence, and reputational issues that can quickly get worse. When handling risks, we exercise caution since any mistake could immediately attract public attention" (PUC11, personal communication, 7th July, 2025).

Private University Council Members

"The threats of dwindling enrollment, accreditation, and competition from other privately owned universities are constantly assessed by us. Risk management is a fundamental part of our decision-making process since sustainability is constantly at risk" (PRUC7, personal communication, 16th August, 2025).

The ability to manage risk effectively is closely connected to the degree of decision-making autonomy available to councils, as flexibility often determines how swiftly risks can be addressed.

4.1.4 Decision-Making Autonomy and Governance Flexibility

A key difference emerged in the degree of autonomy exercised by governing councils. Private university councils operated with higher governance flexibility, enabling swift executive decisions, rapid leadership interventions, and adaptive policy reforms. In contrast, public university councils experienced constrained autonomy, particularly in matters related to senior appointments, financial approvals, and policy reforms, due to ministerial influence and statutory oversight. While council members demonstrated competence, their managerial discretion was often curtailed by external control mechanisms.

Public University Council Members

"Even if the council agrees, ministerial or regulatory permission may still be needed for final approval. Although we have autonomy, it is used inside a strictly regulated public sector framework" (PUC10, personal communication, 7th July, 2025).

Private University Council Members

"After the council makes a decision, implementation takes place immediately; we don't need to wait for outside approval. When problems emerge, the flexibility of governance enables us to take decisive action" (PRUC9, personal communication, 16th August, 2025).

Variations in autonomy are further influenced by the professional composition of councils, as members' expertise shapes how roles are interpreted and exercised within institutional constraints.

4.1.5 Professional Expertise, Experience, and Role Interpretation

Council members across both sectors brought diverse professional backgrounds, including academia, finance, law, public administration, and corporate leadership. This diversity enhanced analytical depth and governance deliberation. However, private university councils tended to prioritise managerial and corporate expertise, while public university councils had stronger representation from academia and public service. As a result, private university councils leaned towards performance-driven governance, whereas public university councils emphasised procedural compliance and academic traditions.



Public University Council Members

“Our understanding of governance obligations is influenced by the fact that many of us have backgrounds in academia and public service. Our proficiency in public accountability and academic culture is our strongest suit” (PUC12, personal communication, 8th July, 2025).

Private University Council Members

“The council specifically seeks out members with experience in finance, law, and business. We regard ourselves as strategic partners to management in addition to overseers” (PRUC10, personal communication, 16th August, 2025).

These professional orientations also shape how councils conceptualize ethical responsibility, stakeholder engagement, and accountability mechanisms.

4.1.6 Ethical Leadership, Accountability, and Stakeholder Engagement

Ethical leadership and accountability were central to governance practice in both sectors. Council members upheld principles of transparency, fiduciary responsibility, and institutional integrity. Public university councils demonstrated stronger engagement with external stakeholders, including government agencies, unions, and regulatory bodies. Private university councils focused more on internal accountability and stakeholder responsiveness, particularly to students, parents, and proprietors.

Public University Council Members

“Since we answer to the government, labor unions, students, and the public at large, ethical leadership is essential. One of our most challenging tasks is juggling the interests of several stakeholders” (PUC8, personal communication, 7th July, 2025).

Private University Council Members

“We are directly and immediately accountable because owners, parents, and students want openness at all times. The institution immediately suffers if trust is lost, hence it must be preserved.” (PRUC11, personal communication, 16th August, 2025).

Contradictory cases were actively examined rather than excluded. Notably, two public university council members reported instances of rapid and decisive governance action, contradicting the dominant narrative of bureaucratic inertia. These cases were traced to exceptional leadership alignment and informal negotiation with regulators, suggesting that individual agency can occasionally override structural constraints. Similarly, one private university council displayed slow decision-making, attributed to proprietor interference and internal governance disputes. These negative cases were analytically valuable, as they demonstrated that ownership type alone does not determine governance effectiveness; rather, the interaction between autonomy, leadership cohesion, and institutional culture is decisive.

4.2 Discussion

The study examines how managerial competencies are exercised by governing council members in public and private universities in Ghana and how institutional contexts shape their effectiveness. The findings show that councils in both sectors demonstrate strong competencies in strategic oversight, financial monitoring, risk management, and ethical leadership, reinforcing the central role of governing councils in effective university governance (Altbach, 2010; Bingab et al., 2018). These results align with corporate governance theory, which emphasises the responsibility of governing boards to provide strategic direction, monitor management, and ensure organisational accountability (Dinye & Boon, 2023). However, the study reveals that the effectiveness of these competencies is influenced by differences in governance environments, ownership structures, and institutional autonomy.

From the perspective of institutional theory, governance practices in public universities are strongly shaped by regulatory and normative pressures (Alomenu, 2023). Council members in public institutions prioritise procedural compliance, stakeholder mediation, and accountability to state actors. Nevertheless, bureaucratic controls, ministerial oversight, and statutory approval procedures limit councils’ ability to translate managerial competence into strategic agility. This dynamic highlights a tension between institutional legitimacy and strategic responsiveness, supporting earlier studies showing that political interference and regulatory complexity can undermine governance effectiveness despite the presence of competent council members (Okoye et al., 2025; Obeng-Sarpong et al., 2020).

In contrast, private university councils operate within more flexible governance environments that allow managerial competencies to translate more directly into strategic outcomes. These councils emphasise financial sustainability, enrolment growth, and institutional competitiveness, reflecting principles associated with corporate governance and entrepreneurial governance models (Bondzi-Simpson & Agomor, 2021). Consequently, private university councils often function as strategic partners to management, reinforcing evidence that private institutions tend to adopt market-oriented governance approaches that prioritise efficiency, innovation, and institutional performance (Tetteh & Ofori, 2010; Alomenu, 2023).



The study also finds that professional diversity among council members enhances governance effectiveness by improving deliberation quality and oversight capacity. Councils that include expertise from law, finance, academia, and industry are better able to scrutinise management decisions and identify strategic risks, supporting corporate governance arguments that board diversity strengthens monitoring and decision-making processes (Dinye & Boon, 2023). However, the findings show that diversity alone is insufficient; differences in role interpretation and institutional expectations influence how council members contribute to governance. Public university councils tend to emphasise academic traditions and procedural legitimacy, whereas private councils adopt a more strategic partnership orientation with management. This supports arguments that effective governance requires not only competence but also role clarity, trust, and supportive institutional conditions (Okof-Darteh & Asamoah, 2021).

Gender dynamics further shape governance practices within university councils. Although women are underrepresented, their contributions often strengthen ethical oversight, transparency, and procedural accountability in council deliberations. These findings support broader governance literature suggesting that gender diversity can enrich board discussions and enhance ethical decision-making (Dinye & Boon, 2023). However, gendered power relations limit women's influence, as they are less likely to hold leadership roles, such as council chair positions or seats on strategic committees. Institutional theory helps explain these patterns by highlighting how broader societal norms about leadership and authority become embedded in governance structures (Alomenu, 2023).

The study also finds that gender disparities are particularly visible in private universities, where governance processes are strongly oriented toward efficiency and financial performance. Male dominance in strategic and financial committees may reinforce gender hierarchies unless deliberate reforms address representation and leadership opportunities. This finding refines corporate governance debates on board diversity by demonstrating that representation alone does not guarantee influence; meaningful participation depends on how authority and leadership roles are distributed within governing bodies.

Overall, the study concludes that effective university governance in Ghana emerges from the interaction between managerial competencies and institutional environments. Institutional theory explains how regulatory pressures and legitimacy concerns shape governance practices in public universities, while corporate governance theory provides insight into the strategic and performance-oriented governance approaches adopted by private universities. The findings therefore highlight the need for governance reforms that strengthen council competencies while also addressing institutional constraints, promoting governance autonomy, role clarity, and inclusive participation to improve the effectiveness of university governing councils in Ghana.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The study examined the managerial competencies of governing council members in public and private universities in Ghana and their influence on governance effectiveness. The findings show that council members possess key competencies such as strategic leadership, financial oversight, risk management, ethical leadership, and stakeholder engagement, which enable them to guide institutional direction, ensure accountability, and support organisational sustainability.

However, the application of these competencies differs across governance contexts. In public universities, governance is shaped by strong regulatory and political oversight, which promotes transparency and accountability but often limits managerial flexibility and slows strategic decision-making. In contrast, private universities operate in more flexible governance environments, allowing council members to apply their competencies more effectively in promoting strategic agility, financial discipline, and performance-oriented management.

The study's main contribution lies in repositioning managerial competencies as a critical lens for understanding university governance effectiveness in Ghana. Rather than focusing solely on governance structures and policies, it highlights how governance outcomes emerge from the interaction between the competencies of council members, institutional contexts, and levels of autonomy. The study also contributes comparative empirical evidence on governing council competencies across public and private universities and emphasizes the value of professional diversity and gender inclusion in strengthening governance deliberations, while noting persistent gender disparities in leadership influence within councils.

5.2 Recommendations

Based on the findings of the study, the following recommendations are proposed for policymakers, regulatory agencies, and university leadership to strengthen governance effectiveness in Ghanaian universities. The Ministry of Education (MoE) and Ghana Tertiary Education Commission (GTEC) should establish and institutionalise a mandatory governance development programme for all newly appointed governing council members. Participation in such a programme should be required before council members assume full governance responsibilities. Again, the government of Ghana and university proprietors should introduce transparent and merit-based appointment criteria for



governing council membership. Appointment frameworks should prioritise individuals with demonstrable expertise in higher education governance. This reform would reduce excessive politicization and ensure that governing councils possess the managerial expertise necessary for complex institutional decision-making.

Furthermore, universities should introduce periodic governance performance assessments to evaluate the effectiveness of governing councils. Independent governance reviews should be conducted every three to five years to ensure continuous improvement in council performance. Lastly, universities and appointing authorities should adopt formal gender representation targets to promote balanced participation in governance. Women should be actively appointed to leadership roles, including council chair positions and key committees such as finance and strategy committees. Such reforms would strengthen inclusive governance and enhance ethical oversight within university councils.

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Appendix I: Demographic Characteristics of Participants

Attribute	Category	Public Universities (n=15)	Private Universities (n=14)	Total (n=29)
Gender	Male	11	9	20
	Female	4	5	9
Council Role	Chairperson / Vice Chair	4	3	7
	External Council Member	6	7	13
	Internal Member (Senior Academic)	5	4	9
Professional Background	Academia	7	4	11
	Public Administration / Policy	4	1	5
	Finance / Accounting	2	4	6
	Law / Corporate Leadership	2	5	7
Years of Governance Experience	3–5 years	6	5	11
	6–10 years	7	6	13
	Over 10 years	2	3	5
University Type	Public	15	–	15
	Private	–	14	14

Indigenous communication practices of traditional healers in Upper East and Upper West regions of Ghana

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ABSTRACT

This study explores how traditional healers in Kabre and Bongo-Soe in the Upper East Region and Kaleo and Jirapa in the Upper West Region of Ghana use indigenous modes of communication and practices in the discharge of their duties. The study is theoretically grounded in embodied cognition and Indigenous epistemologies, using epistemic injustice as an analytical lens. The target population comprised practicing traditional healers, apprentices, and selected community elders within these communities. Anchored on embodied cognition, indigenous epistemologies, and epistemic injustice, the study employs a qualitative ethnographic design involving in-depth interviews, participant observation, and Focus Group Discussions (FGDs). Using purposive and snowball sampling techniques, a total of 30 participants were selected, consisting of 17 traditional healers, 8 apprentices, and 5 community elders. Throughout the fieldwork, detailed field notes were kept to document reflections, emergent observations, and contextual insights. Data were analyzed using thematic analysis, involving systematic coding, familiarization with the data, pattern identification, and iterative development of themes to generate culturally grounded interpretations of communication and healing practices. Findings reveal that healing knowledge is communicated through multimodal practices including spiritual calling, silence, ritual performance, apprenticeship, symbolic action, and dialogic engagement with the natural environment. These indigenous modes of communication and practices not only facilitate knowledge transmission but also establish healer authority, legitimacy, and therapeutic efficacy within cosmological and ethical frameworks. However, findings further reveal that the continuity of these practices is challenged by selective spiritual transmission, secrecy, generational change, and the growing dominance of biomedical systems. The study argues that recognizing indigenous modes of communication as embodied, relational, and epistemically valid is crucial for the sustainability and equitable recognition of indigenous healing systems in Ghana. This study recommends that there is the need for state actors such as the Ministry of Health to ensure that indigenous healing communication is formally recognized within Ghana's health and cultural policies. The study adds to the body of literature on indigenous communication-based healing practices in Ghana, particularly among the people of Kabre and Bongo-Soe in the Upper East Region and Jirapa and Kaleo in the Upper West Region.

Keywords: Embodied Cognition, Epistemic Injustice, Indigenous Communication, Traditional Healing, Indigenous Knowledge Systems

I. INTRODUCTION

According to literature (Warren & Hoppers, 1991/2005), Indigenous Knowledge Systems (IKS) are the locally produced understandings, skills, beliefs, rituals, and practices that have been formed and consolidated over generations through close engagement with the environment, health and ailments, cosmology and social life. Literature reveal that in many African civilizations, IKS served as a fundamental basis for communication, social organization, and health practices (Gyasi et al., 2011; Dei, 2019). Through IKS, African traditional healers from different cultural backgrounds have used different forms of Traditional Medicine as a means to managing their ailments (Gyasi et al., 2011). They are long-standing epistemological traditions that interprets illnesses, restore health balance, and sustain the overall well-being of community members' (Awuah-Nyamekye, 2015; Murray, 2025).

In Ghana, indigenous healing is traditionally viewed as a holistic approach that incorporates physical, spiritual, social, and environmental aspects of existence, especially in the northern parts of the country which include Upper East and Upper West Regions (Kwame, 2016; Opoku, 2018; Adu-Gyamfi, & Anderson, 2019; Kwame, 2021) where this study is focused. Indigenous healing practices see ailments as a disturbance in the equilibrium between people, their communities, nature, ancestors, and spiritual forces, in contrast to Western biological theories that frequently isolate disease within the body (Mbiti, 2001; Millar & Dittoh, 2004). Culturally rooted communication techniques, such as ceremonial speech, storytelling, divination, proverbs, music, and symbolic performances are used to convey, negotiate, and resolve these interpretations of illnesses (Gyasi et al., 2011; Dei, 2008).

Among the among the people of Kabre and Bongo-Seo (Upper East Region) and Jirapa and Kaleo (Upper West Region) of Northern Ghana, traditional knowledge systems are deeply rooted in communal life and transmitted largely through performative communication and oral. The Dagaba ethnic group, predominantly located in the Upper West Region and parts of Burkina Faso, organize their societies around ancestral authority, earth shrines and kinship structures, elders, ritual specialists, and traditional healers. This trend is also applicable to the Frafra ethnic group in the Upper East Region. These traditional practices function as not only as custodians of medicinal knowledge, but also as communicators who mediate between the human and spiritual realms. Healing practices among the four communities selected for this study are therefore inseparable from indigenous communication systems that employ language, symbolism, and ritual action to diagnose illness, restore harmony, and reaffirm moral and social order (Adu-Gyamfi & Lankpiere, 2023; Alika, 2024; Agana et al, 2025). Their traditional healing practices are rooted on a cosmological worldview that holds the view that sickness might be caused by natural causes, spiritual discontent, strained social bonds, or transgressions of cultural standards. Since divination sessions, ritual consultations, and group discussions enable healers and elders to decipher messages from ancestors, deities, or the earth shrine, communication becomes a major tool for determining the causes of ailments. Specialized ritual language, chants, libation prayers, and symbolic acts that transmit meaning beyond plain speech are frequently used in these communication procedures. Instead of being an individual medical intervention, healing becomes a community and communicative effort through such activities (Mbiti, 1976; Millar & Dittoh, 2004; Adu-Gyamfi & Lankpiere, 2023)

Additionally, healing knowledge is handed over to generations through indigenous communication. Through apprenticeship, storytelling, proverbs, and participation in communal ceremonies, the the people of Kabre and Bongo-Seo communities (Upper East Region) and Jirapa and Kaleo communities (Upper West Region) of Northern Ghana hand over their medical knowledge of plants, therapeutic rituals, and health-related moral norms to incoming potential ones. Proverbs and stories serve as archives of traditional medical knowledge and moral instruction, instructing future generations on appropriate behaviour, reverence for spiritual powers, and the repercussions of social discord. Despite the lack of documented evidence, this oral mode of transmission guarantees the continuation of traditional healing procedures and strengthens collective memory (Yankah, 2012 & Manyozo, 2018).

It is very significant to stress that history has it that indigenous methods of healing and communication were neglected by colonization through the advent of Western biological systems, which branded traditional healings as unscientific or archaic (Absolon, 2010; Kealiikanakaoleohaililani & Giardina, 2016). Despite these challenges, traditional healing is still relevant and commonly used in Ghana, especially in rural settings such as Upper East and Upper West Regions where access to modern medical services is restricted. According to recent studies, many people combine biomedical care with traditional healing, exhibiting a pluralistic approach to health-seeking that is influenced by cultural values and communicative faith in traditional authority (Tsey, 1997. McCabe, 2007; Alford et al, 2014; Waldram, 2015; Gyasi et al., 2011).

Therefore, the study of traditional healing through indigenous modes of communication among the people of Kabre and Bongo -Soe communities in the Upper East and Jirapa and Kaleo communities in the Upper West Region is important because it emphasizes how culture-specific communication systems support health, identity and social cohesiveness. The preservation of indigenous knowledge, culturally sensitive healthcare, and the incorporation of traditional communication methods into contemporary health frameworks are all topics that are enhanced by the understanding of these systems. This study emphasizes indigenous communication modes as a therapeutic process and an essential cultural resource in Northern Ghana by investigating the transmission, interpretation, and application of healing knowledge.

Notwithstanding the fact that indigenous healing communication systems continue to be relevant, they are increasingly threatened by modernity, urban migration, young disengagement, formal education systems, changes in religion, and the predominance of biological narratives. Apprenticeship programs that rely on quiet, patience, and spiritual discipline are becoming more and more incompatible with the socioeconomic pressures of today. Furthermore, the secrecy that protects ritual legitimacy also limits public acknowledgment and recording, making indigenous communicative practices susceptible to epistemic marginalization (Fricker, 2007). While existing Ghanaian scholarships have explored the regulation of traditional medicine and the effectiveness of herbal remedies, limited attention has been paid to the communicative processes through which healing knowledge is acquired and transmitted in Ghana,

particularly in the Upper East and Upper West Regions where this study is focused. This study addresses that gap by foregrounding indigenous communication as the epistemic foundation of healing among the people of Kabre and Bongo -Soe communities in the Upper East and Jirapa and Kaleo communities in the Upper West Region.

1.1 Research Objectives

The paper therefore focused on the following objectives:

- (i) To explore indigenous modes of communication employed in traditional healing in Kabre and Bongo -Soe communities in the Upper East Region and Jirapa and Kaleo communities in the Upper West Region.
- (ii) To examine how these communicative practices, facilitate the acquisition, transmission, and legitimacy of healing knowledge.
- (iii) To identify socio-cultural, generational, and biomedical challenges affecting the continuity of indigenous healing communication.
- (iv) To analyse implications for the sustainability and epistemic recognition of indigenous healing systems in northern Ghana.

II. LITERATURE REVIEW

2.1 Theoretical Review

Three complementary theoretical frameworks namely Embodied Cognition, Indigenous Epistemologies and Epistemic Injustice serve as the foundation for this study. Each framework offers a unique perspective for understanding Indigenous healing practices, communication, and transmission among the traditional healers of the study areas.

2.1.1 Embodied Cognition

According to the theory of embodied cognition, bodily experience and contact with the environment are inextricably linked to knowledge, thought, and comprehension (Varela et al., 2017). This concept emphasizes on how indigenous modes communication is enacted through rituals, gestures, spatial arrangements, and interaction with natural elements as well as verbal in the context of Indigenous healing. Healing procedures are very performative and sensory among the people of Kabre and Bongo -Soe communities in the Upper East and Jirapa and Kaleo communities in the Upper West Region; information is passed down through ceremonial participation, apprenticeship, and physical technique. The study highlights that healing communication is essentially relational, experienced, and enacted via the body as much as through speech by using embodied cognition. The multimodal, performative elements of healing that are essential to the communities' knowledge systems can be captured by a researcher using this lens.

2.1.2 Indigenous Epistemologies

Indigenous epistemologies acknowledge that knowledge is relational, culturally situated, and frequently entwined with ecological, social, and spiritual aspects (Smith, 2005; Dei, 2008).

Instead, then imposing western paradigms of truth and proof, these frameworks give priority to the values, viewpoints, and techniques of knowledge development within Indigenous communities. Indigenous epistemologies support the use of participant observation, ethnographic techniques, and intergenerational discussions which this study adopted. Epistemologies are ingrained in oral traditions, rituals, symbolic communication, and community mentoring. Instead of limiting healing methods to biomedical or western rationalist categories, using this paradigm ensures that IKS are included.

2.1.3 Epistemic Injustice

The systematic exclusion of some groups' information, experiences, or viewpoints often due to social, cultural, or political hierarchies is referred to as epistemic injustice (Fricker, 2007). Communities such as the Kabre and Bongo -Soe communities in the Upper East and Jirapa and Kaleo communities in the Upper West Region often experience epistemic injustice in the context of Indigenous healing when their knowledge is disregarded, exploited, or devalued in academic discourse or formal healthcare institutions. The study can critically analyze the power dynamics surrounding the creation and dissemination of information through this approach. It highlights the political aspects of healing by bringing attention to how the validity of Indigenous communicative practices may be disputed, disregarded, or only partially acknowledged. By incorporating epistemic injustice, the researcher can promote a more equitable understanding of traditional knowledge systems by documenting activities and challenging prevailing narratives that undermine indigenous authority.

When combined, these frameworks offer a comprehensive perspective on how Indigenous healing communication is simultaneously embodied, relational, politically located, and spiritually grounded. Indigenous epistemologies place healing practices inside culturally unique knowledge systems, embodied cognition captures the

performative and experiential nature of healing, and epistemic injustice highlights the social and political obstacles these practices must overcome. In order to ensure that the study takes into account both the cultural and structural aspects of indigenous healing, this theoretical triangulation allows for a detailed investigation of how knowledge is created, communicated, challenged, and preserved among the people.

2.2 Empirical Review

2.2.1 Indigenous healing practices in the global context

Globally, indigenous healing systems are becoming more widely recognized as an alternative epistemology based on relational, spiritual, and embodied in traditional modes of communication styles (Smith et al, 2020; Wilson et al, 2011; Gupta et al, 2022). According to studies conducted among Indigenous peoples in Australia, America, and Asia (Kirmayer, 2012; Sørly et al., 2021), healing knowledge is made up of ritual performance, symbolic acts, dreams, visions, and multisensory interaction rather than written instruction. In the opinion of these scholars, communities encode memory, ethics, and cosmology through communication, which serves as an educational and spiritual process. According to academics of embodied cognition, learning happens not just through abstract reasoning but also through bodily participation and environmental atonement (Varela et al., 2017; Kirmayer & Jarvis, 2019). Gestures, touch, music, and spatial movement all form part of communication acts that produce meaning and therapeutic effects in healing environments. Biomedical epistemologies that divide the intellect from the body and communication from practice are called into question by these revelations.

Nonetheless, global health paradigms continue to exclude indigenous modes of communication. From Fricker's (2007) point of view, the idea of epistemic injustice, indigenous healers are systematically devalued because non-textual and spiritual forms of communication are viewed as non-scientific. Despite the growing recognition of herbal components, ritual language and spiritual communication are frequently left out of integration initiatives especially government initiatives (Irwin & Smith, 2019). Additionally, language loss, generational disruption, and urbanization pose a threat to indigenous healing communication, which is a component of endangered intangible cultural heritage (Imbang et al., 2025). This is because knowledge that is separated from its communicative environment loses its significance. It is against this background that scholars have called for the need of documentation of traditional modes of communication and traditional healing in order to preserve them from extinction (Simpson, 2017). This emphasizes the need for this current study which is locally and culturally based.

2.2.2 Indigenous healing practices in the African context

African indigenous healing systems are deeply rooted in oral tradition, ritual performance, music, and spiritual. These are all fundamental components of African indigenous healing systems. According to Mbiti (1976), African cosmologies place health in the context of interactions between people, ancestors, spirits, and the natural world. Therefore, chants, drumming, sacrifices, storytelling, and symbolic gestures that activate these linkages are used to convey healing knowledge (Gyekye, 1995; Finnegan, 2014).

In African healing traditions, apprenticeship continues to be the most common method of knowledge transfer. Dei (2008) and Awindor (2017) contend that rather than explicit instruction, learning happens through extended observation, silence, service, and ceremonial initiations. African healing relies heavily on music as a means of communication. According to Nketia (1982) rhythm and melody serve as both spiritual conduits and mnemonic mechanisms. This current study is in line with the Koligo performances of the Sabaa' community which serve as an example of how music can be used as a nonverbal semiotic system to call forth spirits and retrieve healing knowledge.

However, western education, religious change, and biomedical domination are increasingly affecting African indigenous communication systems (Feierman, 1985; Pemunta, & Tabenyang, 2020; Adu-Gyamfi & Anderson, 2022; Shumba et al., 2022). That is pharmacology is frequently given precedence over cosmology when it comes to integration initiatives, depriving therapeutic knowledge of its spiritual and communicative roots and strength (Young, 1981.; Somé, 1995; Quah, 2003; Goody, 2005). This study addresses calls for epistemic pluralism based on African realities made by Ndlovu-Gatsheni, 2021; Nyamnjoh, 2022; Nyamnjoh, 2025; Inusah, 2025).

2.2.3 Indigenous healing practices in the Ghanaian context

Traditional healing is still a major component of healthcare systems in Ghana, especially in rural areas (Frimpong, 2023; Ampomah et al, 2024; Owusu et al., 2025; Annan et al., 2025). Ritual speech, ancestor invocation, herbal symbolism, embodied diagnosis, and spiritual consultation are all included in indigenous healing communication. Translation into biomedical discourse is intrinsically constrained because indigenous languages encode metaphysical concepts necessary for the validity of therapy (Scott, 2005). Healing knowledge is typically passed down through ancestry and ancestral calling among. Healers' descriptions of knowledge as "a gift from God through the ancestors" and other narratives of divine selection are consistent with Millar's and Dittoh (2004) cosmovision model, which

presents knowledge as spiritually mediated and cyclical. The claim that "plants have souls" serves as more evidence that nature is a communicating agent as opposed to a passive resource.

According to scholars (Agboka, 2021; Adade et al., 2024), some stakeholders have been orientated by western education, prioritizes pharmaceutical validation over ritual language, secrecy, and spiritual contact associated with traditional healings, despite its desire for regulation. Apprenticeship systems are further disrupted by youth mobility and formal education, resulting in generational disparities in communicative ability (Kwame, 2016; Ouma, 2022; Olujimi, 2024; Sutrisno, 2025). Despite these obstacles, indigenous healing continues through adaptable methods, such as referring patients to medical institutions; this is proof of resilience rather than decline. This study fills a critical gap by empirically documenting on how indigenous modes of communication sustain healing knowledge in northern Ghana, especially the study areas, Upper East and Upper West Regions.

III. METHODOLOGY

3.1 Study Area

Four communities drawn from the Upper East and Upper West Regions were selected for the study due to their predominant nature of traditional healers, apprentices, elders, and traditional birth attendants (TBAs), as well as the continued use of Indigenous healing techniques ingrained in spiritual and ritual frameworks. The communities included Kabre and Bongo-Seo in the Upper East Region and Jirapa and Kaleo in the Upper West Region. These environments offered an ideal setting for investigating the enactment, transmission, and maintenance of healing knowledge and communication.

3.2 Target Population

The target population for this study comprised practicing traditional healers, their apprentices, and selected community elders within Kabre and Bongo-Soe in the Upper East Region and Kaleo and Jirapa in the Upper West Region of Ghana. Practicing traditional healers were included because they are the primary custodians and transmitters of indigenous healing knowledge, communication practices, and ritual expertise. Apprentices were selected due to their active involvement in the learning and transmission processes of indigenous healing systems, providing insights into intergenerational knowledge transfer and apprenticeship structures. Community elders were included because of their recognized authority, cultural memory, and role in validating healer legitimacy, ethical conduct, and cosmological frameworks within the community.

The population was therefore purposively defined to include individuals who possess experiential, cultural, and spiritual knowledge relevant to indigenous modes of communication and healing practices. This ensured that participants were information-rich cases capable of providing in-depth perspectives aligned with the objectives of the study.

3.2 Sampling and Sample Size

The study adopted purposive and snowball sampling techniques (Patton, 1999) where a total of 30 participants were selected for the study, comprising 17 practicing traditional healers, 8 apprentices, and 5 community elders across the selected communities. Purposive sampling was initially employed to identify participants who were directly involved in indigenous healing practices and were considered knowledgeable custodians of healing traditions and communicative practices. Selection criteria included active engagement in healing activities, recognition by community members, and willingness to participate in the study.

Snowball sampling was subsequently utilized to access additional participants, particularly healers whose practices are spiritually selective or less publicly visible. Initial participants assisted in identifying other knowledgeable practitioners and apprentices within their networks. This approach was especially appropriate given the culturally sensitive and sometimes secretive nature of indigenous healing systems, where access is often mediated through trust and relational endorsement.

Throughout the fieldwork, detailed field notes were systematically recorded to document observational data, researcher reflections, non-verbal communication cues, ritual contexts, and emergent themes. These notes complemented interview and FGD data, provided contextual depth, and enhanced the credibility and richness of the ethnographic analysis.

3.3 Data Collection Methods

This study employed a qualitative ethnographic methodology due to its ability to capture contextualized insights into cultural practices, rich social interactions, and symbolic expressions that are frequently unavailable through quantitative methods (Poth, 2019). According to Lincoln et al (2011) & Garrido (2017), ethnographic study emphasizes understanding phenomena from participants' own viewpoints and permits thorough immersion in community settings.

This paradigm places observation and interpretation in naturalistic circumstances, with the researcher serving as the main tool of inquiry (Lincoln & Guba, 1985).

Participants lived experiences, beliefs, and narratives regarding indigenous communication and healing traditions were recorded through in-depth interviews, using open-ended questions (Suriandjo, 2024). Insights on verbal, nonverbal, symbolic, and environmental cues that influence interaction within cultural contexts were obtained by participant observation, which offered immersive documentation of rituals, rites, and communication practices (Participant observation, 2025). In line with best practices in qualitative inquiry, Focus Group Discussions (FGDs) with community members and apprentices enabled investigation of shared experiences, intergenerational knowledge transmission, and collective meaning. In all, 8 focused group discussions were conducted in the four communities, with each lasting one hour on average. Throughout, thorough field notes were kept to record reflections, emergent observations, and contextual information.

3.4 Data Analysis

Data were analyzed, using thematic analysis, a widely accepted method for identifying, analyzing, and interpreting patterns of meaning across qualitative data (Braun & Clarke, 2025). This analytical framework involves systematic coding and iterative development of themes that reflect the core constructs within the data set (Patton, 1999). Themes were generated through a process of familiarization, coding, pattern identification, and interpretative synthesis, allowing for culturally grounded insights into communication and healing practices.

3.5 Validity and Reliability

The concepts of validity and reliability were reinterpreted in terms of trustworthiness in accordance with qualitative research standards (Lincoln & Guba, 1985). According to Birt et al. (2016), reliability is increased through member checking, which involved reviewing preliminary interpretations with participants to make sure they aligned with their perspectives, and triangulating interviews, observations, focus group discussions, and field notes. Long-term participation in the field improved rapport and familiarity with participants, which promoted genuine data gathering. Dependability and confirmability were further improved by reflexivity, which involves critically analyzing the researcher's positionality, presumptions, and impact on interpretation (Guba & Lincoln, 1994). The researchers of this study were able to assess applicability in different contexts through a thorough explanation of context and procedures.

3.6 Ethical Considerations

Informed consent, voluntary participation, and respect for boundaries of holy knowledge were all stressed in ethical guidelines (Alhabsi, 2024). Individual and community norms were taken into consideration when obtaining informed consent in indigenous research settings. Throughout the research process, participants were guaranteed anonymity and confidentiality, and culturally appropriate procedures were used to respect spiritual sensitivities and community traditions.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Indigenous Modes of Communication in Traditional Healing

Findings from the study areas indicate that traditional healing knowledge is primarily transmitted through indigenous modes of communication that are spiritual, ritual, symbolic, and environmental in nature. Healers consistently described their knowledge as something bestowed on them rather than taught formally, emphasizing spiritual calling and ancestral selection. Dreams, visions, and ritual initiation were frequently cited as the main conduits through which knowledge flows, highlighting the deeply cosmocentric nature of communication within these communities. Knowledge is not neutral; it is imbued with sacred authority and moral responsibility, making communication inherently ethical and selective.

Healers also described their interactions with the natural environment as a form of dialogue. For example, a healer from s community in the Kabre community of the Bongo traditional area of Upper East Region explained:

"I do not have to steal the herb; if I do, it will not work. Sometimes I have to circle the tree one to three times before harvesting. This is to wake it up or call it if it has travelled. Plants have souls, and if I harvest without consent, the medicine will be powerless." (Key Informant, 30th October, 2025).

This indicates that communication in traditional healing is not limited to human interlocutors; it extends to plants, water, and other elements, which are treated as sentient agents capable of responding to respectful interaction. Similarly, in Jirapa community of Upper West Region, knowledge is described as a convergence of divine, ancestral, and environmental forces, transmitted through mentorship and participatory practice rather than formal education. A healer in the Jirapa community said;

“Knowledge of healing is communicated to me through spiritual occurrence. It comes through the ancestors, the earth, trees, and water, verbally or non-verbal. But it ultimately comes from God. ... I now lead a network of healers those I trained and those they trained and the communication among us flows the same way they were trained.” (Key Informant, 10th November, 2025)

Non-verbal communication, including silence, observation, music, and ritual performance, was highlighted as central to knowledge acquisition. Apprentices learn through participation, attentiveness, and spiritual atonements, demonstrating that indigenous communication encompasses multiple sensory and symbolic dimensions beyond spoken language.

4.1.2 Acquisition, Transmission and Legitimacy of Healing Knowledge

The indigenous modes of communication are closely linked to the acquisition, transmission of authority, legitimacy, and therapeutic efficacy in healing. Across both communities, acquisition, transmission, authority of traditional healing knowledge is conferred spiritually rather than institutionally. A healer’s legitimacy derives from ancestral selection, divine blessing, and adherence to ritual and ethical protocols, ensuring that the healer functions as a custodian rather than creator of knowledge.

Ritualized acts, symbolic storytelling, and engagement with natural elements reinforce both the authority of the healer and the effectiveness of healing. A traditional healer from the Bongo-Seo community in Bongo traditional area of Upper East Region, emphasized that spiritual ethics regulate efficacy, stating that misuse of herbs or disrespect toward plants renders treatment powerless. Similarly, a traditional birth attendant from Kaleo community of Upper West Region, explained her diagnostic process as guided by spiritual consultation:

“I consult ancestors when patients arrive. They tell me if it’s a normal illness or spiritual attack. They guide me on herbs to use or animals to sacrifice. ... I also advise patients when to go to the hospital.” (Key Informant, 20th December, 2025)

This example demonstrates that indigenous communication enhances decision-making and ensures appropriate treatment, bridging traditional and biomedical domains. Apprenticeship further supports efficacy, as knowledge transmission occurs through observation, ritual participation, and service to spirits, ensuring that practitioners internalize both technical skills and cosmological ethics. In this way, communication reinforces the healer’s authority, preserves cultural integrity, and sustains effective healing practices.

4.1.3 Challenges Threatening Continuity of Traditional Healing Knowledge

Despite its resilience, the transmission of indigenous healing knowledge faces several challenges that threaten continuity. Firstly, the spiritual and selective nature of transmission means that not all apprentices are accepted, limiting the number of new healers. A traditional healer from the Jirapa community of Upper West Region observed:

“Some don’t pass because they are not spiritually chosen. Some come for the training just because of the monetary aspect of the healing. However, you must be chosen by the gods of the land to save lives” (Key Informant, 20th December, 2025).

Secondly, secrecy and the protection of sacred knowledge constrain broader learning and documentation. Certain rituals, songs, and herbal recipes are intentionally restricted to preserve spiritual potency, which makes dissemination beyond familial or clan lines difficult.

Thirdly, modernization and biomedical dominance pose threats. Younger generations increasingly prefer formal education and biomedical treatment, reducing interest in ritualized and spiritual modes of knowledge transmission. Migration and urbanization also disrupt apprenticeship systems that rely on long-term observation and participatory learning. Together, these factors endanger the continuity of indigenous communicative practices and risk the loss of experiential, ritualized, and cosmologically embedded knowledge.

4.1.4 Implications for Sustainability and Recognition of Indigenous Healing

The findings highlight significant implications for sustainability and recognition of indigenous healing practices. Firstly, the mentorship and family-based networks identified in both communities ensure continuity, provided that spiritual and ethical protocols are maintained. These networks sustain both technical and cosmological knowledge, demonstrating that transmission is as much about spiritual formation and moral discipline as about skill acquisition.

Secondly, community trust and legitimacy are directly tied to communicative practices. Ritual validation, ancestral guidance, and adherence to sacred protocols ensure that healers are respected and that healing is effective. Integration with biomedical care, as seen in Kaleo community of Upper West Region. TBAs referring patients to hospitals, also highlights adaptability, showing that indigenous systems can remain relevant without losing cultural specificity.

Finally, sustainability and recognition require documentation, cultural support, and policy engagement. While secrecy preserves sacredness, respectful recording and awareness programs can help bridge indigenous healing

with broader healthcare recognition, ensuring cultural survival and ethical continuity. Indigenous communication, therefore, is not only a pedagogical tool but also a framework for safeguarding cultural, spiritual, and therapeutic sustainability.

To sum up, the findings reveal that Indigenous communication is inherently multi-modal, encompassing spiritual, ritual, symbolic, environmental, and non-verbal forms. Such communication does not only convey knowledge, but also reinforces authority, legitimacy, and effectiveness within healing practices. However, challenges arise from selective spiritual transmission, secrecy, modernization, and broader cultural changes. This can threaten the continuity of these practices. Despite this, sustainability is fostered through mentorship, strong lineage, community trust, and the adaptive integration of Indigenous practices with modern healthcare systems.

4.2 Discussion

The findings reveal that traditional healing knowledge among the communities of Kaleo and Bongo-Soe (Upper East Region) and Jirapa and Kaleo (Upper West Region) is transmitted primarily through spiritual, ritual, symbolic, and environmental channels, reflecting a cosmocentric epistemology. These findings resonate with other scholars who share similar sentiment (Wilson et al, 2011; Smith et al., 2020) These findings further align with Dei's (2008) assertion that IKS are dynamic, relational, and spiritually mediated, contrasting with linear, formalized Western pedagogies. Such practices exemplify Indigenous epistemologies, where knowledge is situated within social, ecological, and spiritual contexts and transmitted through participatory, relational processes (Smith, 2005; Dei, 2008). Healers' reliance on dreams, visions, and ritual initiation resonates with Millar's and Dittoh (2004) cosmovision model, positioning knowledge acquisition as embodied and relational, deeply embedded in human–nature–spirit interconnections. This underscores the relevance of Embodied Cognition to the study, emphasizing that knowledge is not only conceptual but enacted through the body, ritual gestures, and interaction with natural elements. Communicative practices involving plants, water, and other natural agents as exemplified by the Kabre healer who circles trees before harvesting herbs, demonstrate that healing knowledge is experiential, participatory, and relational (Mokgobi, 2014). Observation of these embodied practices during fieldwork captures dimensions of communication that are non-verbal, symbolic, and performative, such as ritualized movement, music, and environmental engagement (Awindor, 2017). The healer's statement, "Knowledge is a spiritual occurrence. It comes through the ancestors, the earth, trees, and water. But it ultimately comes from God," illustrates a holistic communicative ecology, where learning, human action, and divine guidance are inseparable, highlighting the embodied and spiritually grounded nature of knowledge transmission (Varela et al., 2017; Dei, 2008).

The study also shows that indigenous communication reinforces healer authority and therapeutic efficacy. Authority in these communities is spiritually conferred rather than institutional, requiring adherence to ritual, moral discipline, and ancestral validation. This finding is consistent with Gyekye's (1995) concept of "organic epistemology," where knowledge, identity, and spiritual power are indivisible. The healer functions as an instrument of ancestral and divine forces rather than as an autonomous agent, illustrating the Epistemic Injustice framework (Fricker, 2007), which recognizes that such knowledge and authority are often marginalized or unacknowledged in dominant biomedical paradigms.

Ritualized acts such as symbolic storytelling, sacrifice, or engagement with environmental agents serve dual functions: transmitting knowledge and validating the healer's authority, ensuring that treatments are spiritually sanctioned and efficacious. For instance, the traditional birth attendant (TBA) from the Jirapa community described consulting ancestors to determine whether an illness is spiritual or physical, reflecting a layered diagnostic system that combines spiritual, empirical, and practical judgment (Dei, 2008). The adaptability of indigenous knowledge is also evident where healers refer patients to biomedical facilities when necessary, demonstrating the capacity of traditional systems to maintain cultural integrity while responding to contemporary health needs.

Despite their resilience, indigenous communicative practices face several threats. Spiritual selectivity, where not all apprentices are "chosen" by ancestors, limits the number of new practitioners. This aligns with Awindor's (2017) observation that transmission is merit-based and contingent on spiritual alignment and moral integrity rather than mere individual effort. Secrecy and restricted access to sacred rituals and herbal knowledge, while safeguarding potency, also constrain intergenerational continuity, especially as younger generations increasingly prioritize formal education and urban livelihoods. Furthermore, modernization, migration, and exposure to biomedical frameworks create pressures that challenge the survival of place-based IKS (Dei, 2008).

The findings underscore key implications for sustainability and recognition of indigenous healing systems. Mentorship networks, lineage-based transmission, and ritualized apprenticeship provide structural resilience, ensuring continuity of both technical and spiritual knowledge, reflecting Millar's and Dittoh (2004) cosmovision framework emphasizing cyclical, intergenerational knowledge stewardship. Integration of spiritual communication, ethical adherence, and community trust ensures that healing practices remain culturally legitimate and socially effective. The healer's statement, "I consult ancestors when patients arrive ... I also advise patients when to go to the hospital,"

illustrates the adaptive capacity of Indigenous knowledge, demonstrating that traditional systems can coexist with modern medicine without compromising epistemic integrity (Fricker, 2007; Dei, 2008).

For formal recognition and sustainability, these practices require supportive policies, documentation, and cultural awareness initiatives. The idea that secrecy protects spiritual potency, strategic preservation programs can ensure that knowledge is safeguarded for future generations. This aligns with Mbiti's (1969) assertion that African cosmologies are maintained through ritual, oral tradition, and community validation.

Indigenous communication among the Kabre and Bongo-Seo in the Upper East Region, and Jirapa and Kaleo in the Upper West Region, is multi-dimensional, encompassing spiritual, symbolic, ritual, and environmental modes. These forms of communication are foundational for knowledge transmission, healer legitimacy, and therapeutic efficacy. Challenges such as selective spiritual transmission, secrecy, and modernization highlight the need for strategic interventions to ensure continuity, sustainability, and recognition of traditional healing. By integrating Embodied Cognition, Indigenous Epistemologies, and Epistemic Injustice frameworks, the discussion situates the findings within culturally grounded, embodied, and politically aware perspectives, demonstrating that Indigenous knowledge is holistic, relational, and adaptive, reflecting a cosmocentric worldview in which learning, being, and healing is inseparable.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

Indigenous healing among the Kabre and Bongo-Seo in the Upper East Region and Jirapa and Kaleo in the Upper West Region is sustained through complex communicative ecologies that integrate spirituality, embodiment, ancestry, and environment. Communication is not ancillary but constitutive of healing knowledge. Preserving these systems requires epistemic justice, culturally grounded policy, and respectful engagement that recognizes indigenous communication as a legitimate way of knowing and healing.

5.2 Recommendations

There is the need for state actors such as the Ministry of Health to ensure that indigenous healing communication is formally recognized within Ghana's health and cultural policies. Ministry of Health should facilitate structured dialogue between biomedical and traditional practitioners as well as the community members. Aside this, community members should have community-controlled documentation initiatives to help preserve communicative practices while respecting secrecy. Additionally, community members should ensure intergenerational apprenticeship programs by involving and engaging the youth

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Assessing the impact of microfinance institutions' approaches and inclusion of the poorest households in Tanzania: A comparative study of WAT SACCOS and Habitat for Humanity

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ABSTRACT

Microfinance is considered to be a solution to access to finance by poor people due to the provision of affordable loans. This study is an explanatory one and is aimed at comparing the approaches adopted by the two housing microfinance institutions in Tanzania, namely WAT SACCOS and Habitat for Humanity Tanzania (HFHT). It focuses on establishing the relationship between the approaches used by the housing microfinance institutions in Tanzania and the poverty levels of their clients. Theories that anchored this research were the livelihood approach, organization theory, and social network theory. Both qualitative and quantitative research methods were used, together with secondary data from different literature and reports. An independent-sample t-test was conducted to determine if there were differences in the amounts of loans between the clients of WAT SACCOS and those of HFHT. Results revealed that there is a statistically significant difference in loan amounts offered to clients between WAT SACCOS ($M=1.4$, $SD=0.59$, $SE=0.09$) and HFHT ($M=2.65$, $SD=1.33$, $SE=0.21$); $t(78)=-5.429$, $p=.000$, i.e., $p<0.05$, representing effect size $r=0.52$. This means that at a 5% level of significance, WAT SACCOS clients have, on average, lower loan sizes compared to those of HFHT. An independent-sample t-test was also conducted to determine if there were differences in loan repayment periods between the clients of WAT SACCOS and HFHT. Results indicated that there is a statistically significant difference in loan repayment periods between WAT SACCOS ($M=11.53$, $SD=1.65$, $SE=0.26$) and HFHT ($M=13.28$, $SD=2.93$, $SE=0.46$); $t(78)=-3.295$, $p=.001$, i.e., $p<0.05$, representing effect size $r=0.35$. This means that at a 5% level of significance, there is a statistically significant difference, with WAT SACCOS showing lower means and hence shorter periods compared to HFHT. With average shorter repayment periods, WAT SACCOS is more favourable to the poorest, hence deeper outreach. From the findings, it has been revealed that the lending methodologies affect the inclusion of the poorest, with group lending allowing for more depth of outreach. Although the two institutions use individual lending for housing improvement loans, the group solidarity approach adopted by WAT SACCOS as a form of group lending has enhanced access for the poorest. It is recommended that there is growing recognition that housing concerns affecting the urban poor need to be integrated into urban development planning and political priorities. Also, parties involved in delivering housing solutions are urged to view homes not just as shelters but as tools for alleviating poverty.

Key Words: Assets, Financial Services, Housing Microfinance, SACCOS

I. INTRODUCTION

Housing is one of the three basic needs for the survival of human beings. "It is also one of the best indicators of a person's standard of living and his place in the society" (Adebamowo et al., 2012, p.127). Therefore, a decent housing is a necessity to not only every human but also for the development of communities (Bhandari, 2024). According to Adebamowo et al. (2012) and Mrindoko and Pastory (2022), housing is also considered as one amongst the most expensive goods due to the fact that its production requires a significant investment. This calls for the financial mechanisms to facilitate its accessibility and affordability. However, in most countries access to housing and housing finance by low income earners is still a problem leading them to face either affordable but inadequate or adequate but unaffordable shelter problems.

Tanzania is one of the developing countries struggling with housing shortage due to a growing shortfall in mortgage finance, particularly for poor households. The housing deficit particularly in the urban areas is estimated to be 1.2 units (Moss, 2003). Mortgage financing for the low income families was only provided by the then Tanzania Housing Bank (THB), a state-owned company, which collapsed in 1995 therefore affecting the housing sector (UN-Habitat, 2010). However, the mortgage market began to operate again in Tanzania after the enactment of the Mortgage Finance (Special Provisions) Act in 2008. The Tanzania Mortgage Refinance Company (TMRC), in partnership with Habitat for Humanity International, has recently announce the official launch of Retail and Wholesale Housing Microfinance products to enable low-income households, particularly those in the informal economy, to build, improve, and expand their homes (Habitat for Humanity, 2021).

Since then, the government has made more efforts to support operations of the mortgage market. One of these efforts is the introduction of Housing Finance Project (HFP) in 2010 which led to the establishment of the Tanzania Mortgage Refinancing Company in 2011 (Langhan, 2016). The HFP is a government initiative under the Ministry of Lands, Housing and Human Settlements Development and its operations correspond to the Tanzania Development Vision 2025, which underscores the importance of affordable housing, access to finance and capital markets development (Langhan, 2016). There are also ongoing reforms in the titling process as well as the Unit Titles Act which was enacted in 2008 to improve the mortgage market in the country (ibid). The establishment of the Tanzania Mortgage Refinancing Company has improved the availability of mortgage finance in the country and has managed to increase the number of financial institutions which offer mortgage loans from 3 in 2010 to 19 in 2014. It has also changed loan durations from 5-10 years to 15-20 years, while interest rates has gone down from 22% in 2010 to as low as 16% in 2014 (Langhan, 2016). According to Langhan (2016) the average debt size offered by financial institution is USD 41,000 and the total number of loans growing from 2,748 at the beginning of 2014 to 3,598 by the end of 2014.

The mortgage industry has improved availability of housing finances but does not offer a lasting solution to the housing backlog in Tanzania. It is argued that low income earners have not been able to access mortgage finance. According to Mutero (2010), only 3% of the population can afford loans from financial institutions. In support of Mutero (2010), Kironde et al. (2003) argue that the limited accessibility of mortgage finance to low income people is caused by restrictive requirements such as lack of acceptable collateral, high levels of minimum loans, unemployment and large cash deposits required upfront. In addition, the mortgage financing institutions consider the low income earners as high risk and believe that they do not pay back the loans (Kironde et al., 2003). Failure of the conventional financing mechanisms to facilitate housing financing for the poor people has led to microfinance being an alternative source of housing finance for this group. Several institutions have engaged in providing housing microfinance in the country. These include Azania Bancorp Limited, WAT SACCOS and Habitat for Humanity (HFH) (Mutero, 2010; UN-Habitat, 2010). On the other hand, government initiatives such as formalizing the landed properties in unplanned settlements and the inclusion of housing microfinance in the Housing Finance Project are but a few of the examples of initiatives undertaken to facilitate poor people's access to housing finance (Mutero, 2010; Langhan, 2016).

Housing microfinance (HMF) is widely seen as an essential market-driven approach to addressing the lack of housing financing for low-income individuals, especially those working in the informal economy who are unable to access conventional long-term home loans (Jager, 2016). Designed to support phased home construction, HMF enables households to make gradual improvements, repairs, or expansions to their dwellings. These initiatives commonly involve loans valued from several hundred to a few thousand dollars, with repayment periods usually lasting between one and five years (Jager, 2016). However, whether the poorest of the poor are included in the housing microfinance programmes in Tanzania is still debatable; which is also dependant on the approach that a particular institution adopts. Therefore, the aim of this study is to explain the effects of approaches adopted by the Housing Microfinance Institutions on poorest households' access to housing microfinance in Dar es Salaam city.

1.1 Statement of the Problem

Housing microfinance is a convenient source of housing finance to the low income group as the microfinance institutions offer small loans and allow use of alternative collateral other than land. The small loans provided facilitate the acquisition of land, construction of new housing, housing improvement as well as installation of infrastructure, which allow for their incremental development or housing improvement (UN-Habitat, 2005). As put by Hatch and Frederick (1998; p.1) "good practice in microfinance is based on the ability to provide appropriate financial services to individuals and households that are otherwise excluded from the financial system".

Much as housing microfinance is considered as an affordable source of housing finance for the majority poor people, like any other microfinance institution its effectiveness has to be measured from its degree of outreach (Meyer et al., 2000). This, according to Conning (1999) refers to the ability of the microfinance institutions to reach many poor people (breadth of outreach) and more of the poorest of the poor (depth of outreach). This has resulted into two basic schools of thoughts; the 'institutionalists' who advocate for greater scale of outreach with profit maximization being the motive and the 'welfarists' who focus on targeted outreach other than scale of outreach (Conning, 1999). The growth of this sector has resulted into some microfinance institutions providing a separate clientele which targets the very poor and others adopting a non-targeting approach (Hatch & Frederick, 1998).

However, there has been an increasing debate on which approach would serve both the poor and also the poorest of the poor (Hatch & Frederick, 1998) as far as access to finance is concerned. Some authors argue that microfinance is a solution to poor household's access to finance due to its focus on small loans and targeting the poor (Armendriz & Morduch, 2009; Chemin, 2008). On the other hand some authors argue to the contrary as it does not serve the poorest of the poor (Hulme, 2000; Shankar, 2013). Giving an example of Grameen Bank in Bangladesh Chemin (2008) points out that despite focus the poorest people almost 25% of the program participants were not the poorest as they did not fit in the eligibility criteria.

According to Mutero (2010), WAT SACCOS aimed at financing 753 micro loans in three years of its pilot project while Habitat for Humanity Tanzania was seeking to reach 4000 clients from 2009-2012 in one of the poorest Municipalities in Dar es Salaam City called Temeke. Although there are no data to show whether these targets were met by the housing microfinance institutions and whether there has been an improvement, the data provided indicates the breadth of outreach. Moreover by targeting the poorest Municipality, Habitat for Humanity is presumed to focus more on depth of outreach. However there is a lack of clarity in terms of the extent to which the poorest people access finance from housing microfinance lenders. Therefore, this study is set out to bridge the gap in knowledge by assessing the effectiveness of the housing microfinance in facilitating access to finance for the poorest in the Tanzanian context. It will focus on depth of outreach so as to look at the effects of different approaches adopted by the Housing Microfinance Institutions on the poorest peoples' access to housing finance.

1.2 Research Objective

- (i) To explain the effects of approaches adopted by the Housing Microfinance Institutions on poorest households' access to housing microfinance in Dar es Salaam city.

II. LITERATURE REVIEW

2.2 Theoretical Review

2.1.1 The Livelihood Approach

The livelihood approach being one amongst the approaches used to measure and theorize poverty basically focuses on household's assets and the way they respond to opportunities, shocks and outcomes brought about by policy interventions (Rakodi, 2002). It advocates for identifying poverty in terms of what the poor have rather than what they do not have (Moser, 1998). It defines poverty by considering assets, capabilities as well as vulnerability. While quoting Carney (1998) Rakodi (2002) defines livelihood as the assets, capabilities and activities required for a living. Hence, the approach proposes that when dealing with poor people much attention should not be centred towards their problems but their strengths or assets (Rakodi, 2002). This argument is based on the fact that poor people may not have the financial assets in terms of cash or savings but they have other assets such as their labour, knowledge and skills (human assets); their families, friends and neighbours (social capital); as well as the house and livestock (physical assets) and the land (natural assets) (ibid). They can utilize these assets to reduce their vulnerability, maintain their livelihoods or accumulate more assets. Therefore poverty is measured in terms of how much assets they hold and their ability to utilise these assets to access and enjoy livelihoods opportunities. However, emphasis built based on assets can lead into neglect of poorest people who are asset less (Chikwira et al., 2022).

2.1.2 Organization theory

Organization theory evolved gradually through contributions from various scholars, starting in the early 1900s with foundational work by classical theorists such as Frederick Taylor, who focused on scientific management, Max Weber, known for his bureaucratic model, and Henri Fayol, who advanced administrative theory. In subsequent decades, new perspectives emerged, including neoclassical, modern, and contemporary views, shaped by figures like Elton Mayo, Herbert Simon, and James G. March.

This is a contemporary view of the firm that suggests a company's goals and operations stem directly from its internal structure. This theory emphasizes the need to examine key organizational features such as structure, membership composition, leadership arrangements, committee roles, staff qualifications, decision-making approaches, and methods used to foster member commitment (Novruzov, 2024). Typically, an organization's structure is intentionally shaped to support its core objectives. Moreover, organizing is seen as an ongoing process involving the identification, categorization, and grouping of activities required to meet specific goals. A central question, therefore, is how these microfinance institutions are structured and whether they can effectively and sustainably oversee their lending programs. Given that structure should align with organizational purpose, it is crucial to assess whether the current setup of a given institution supports its mission. Furthermore, because organizing is a dynamic and continuous activity, periodic restructuring may be necessary to enhance the institution's management effectiveness (Pino-Marchito et al., 2025).

2.1.3 Social network theory

Social network theory: Social network theory emerged gradually through the contributions of multiple researchers over many decades, rather than being the work of one individual. Important early figures include Jacob Moreno, who introduced sociometry in the 1930s, and members of the Manchester School of Anthropology, such as John Barnes and Elizabeth Bott, in the 1950s. The framework was further shaped in the 1970s by scholars like Mark

Granovetter, Ronald Burt, and Barry Wellman, who helped lay the foundation for contemporary structural analysis in the field.

Social network theory examines behavior by analyzing the relationships among actors such as individuals, organizations, governments, landlords, and communities (Bayuma & Abebe, 2023). It emphasizes that fostering long-term behavioral change or an enabling environment requires building connections among people, which in turn supports information exchange and learning within social networks. According to Assefa and Zenebe (2024), social capital consists of the relationships between actors that enable collective action for shared benefits or common goals. This form of capital exists within interpersonal relationships and arises from communication, interaction, cooperation, trust, and resource sharing (Iddrisu, 2025). This paper explores the potential of housing microfinance institutions (HMFIs) in meeting the housing needs of urban poor populations, with a focus on how local communities leverage their social capital to obtain loans from microfinance providers like WAT-SACCOS. Within this framework, loan beneficiaries are expected to collaborate in a structured and coordinated way to achieve set objectives. Strong social cohesion, particularly within small solidarity groups involved in housing initiatives, is considered crucial. Such cohesion depends on effective communication, open exchange of ideas, and the development of mutual trust. The study seeks to address two main questions: first, how do social networks contribute to improved loan repayment? Second, how does WAT-SACCOS and Habitat for Humanity utilize social network principles to unite members of the Dar es Salaam region.

2.2 Conceptual Review

2.2.1 Poverty defined

Different authors have come up with several approaches which can be used to measure poverty. They include the economic, non-economic and the composite approaches (Sumner, 2004). However, according to Sumner (2004) the approach to be used depends on the definition of poverty. The economic measures are normally used where poverty is defined in terms of basic needs or material standard of living; whereas the non-economic measures are used when poverty is defined in terms of rights and capabilities. For the composite approach both definitions are considered (ibid). The poverty line analysis being the mostly used economic approach, measures poverty in terms of the amount of dollar spent per day by an individual adult (Sumner, 2004). Thus, according to this approach the poorest people are defined as those living below the nation's poverty line (Armendriz & Morduch, 2009). On the other hand poverty is characterized by the level of assets which are available for households within the socio economic and physical context (Rakodi, 2002). According to (Rakodi, 2002), individuals and households are considered poor when they have insufficient resources to enable them meet their minimum welfare level. This means, they are not able to meet their basic consumption needs.

2.2.2 Housing Microfinance Concept

Microfinance institutions were initially established so as to provide loans for income generating activities (Smets, 2006). Later on a new portfolio which is housing microfinance emerged so as to enable the poor access housing finance (Smets, 2006). Thus, housing microfinance has been established as a niche product of microfinance institutions (McIntosh et al., 2011; Acash, 2026). It is argued that housing microfinance offers an alternative mechanism for financing housing which meets the needs and livelihood strategies of the poor people by supporting incremental self-building (Kihato, 2013; Smets, 2006; Habitat for Humanity, 2021).

Housing Microfinance defined: Housing Microfinance concept can be described as the interception between the housing finance and microfinance in which both the products and the institutions meet (Cornelis & Ruben, 2008). Operations of the housing microfinance institutions resemble those of the microfinance ones as they all provide small loans, with lowered transaction costs which are all geared towards enabling the poor people access affordable housing finance (Ahern, 2009; Hokans & Porteous, 2025). On the other hand, while referring Daphnis and Ferguson (2004), Kihato (2013, p.7) defines housing microfinance as "encompassing financial services that allow poor and low income clients to finance their habitat needs through microfinance methodologies". It therefore carries the main characteristic of microfinance which is basically focusing on poor households' access to finance but for this case the loans are for housing development or improvement (Mwita, 2021).

2.3 Empirical Review

2.3.1 Access to Finance by the Poorest People

Access to finance as one of the assets is one amongst the livelihood strategies used by poor people to maintain and enhance their assets (Rakodi, 2002), housing being one of them. It creates opportunities for households to acquire large sums of money to improve income and reduce vulnerability (Hulme, 2000). This can be achieved through investing in or improving the assets such as housing which can result in improving livelihood conditions hence reduce vulnerability to poorly conditioned housing. However, as already stated the poorest have been excluded from access to finance and make them vulnerable to different situations. To support this, Armendriz and Morduch (2009, p. 170) posit

that "...vulnerability goes hand in hand with having low incomes". Poverty is the key element which affects individual's access relations within different social, political and economic circumstances (Mosse, 2010). It acts as a barrier to access several resources such as finance which affect livelihoods in which housing and housing finance are part of them. Like it has already been stated most of the poor people cannot access the financial institutions due to the stringent conditions attached to the loans as well as the financial institutions' perceptions towards poor people as risk customers (Gutiérrez-Nieto & Serrano-Cinca, 2023).

Moreover, poor people found themselves continuing living in poorly conditioned houses and neighbourhoods especially in economies where prices of land and housing are determined by the market (Slater, 2013). This is basically the result of lack of proper land and housing policies which regulate the operation of the land and housing market (Chikwira et al., 2022). The situation is worse in countries where also land policies do not recognize the rights of people living in informal settlements which house most of the urban poor. The people living in these areas lack security of tenure (Mfuko, 2022). This as a result renders poorest people unable to access finance especially from financial institutions which require proof of security of tenure as one of the conditions for loan provision (Cornelis & Ruben, 2008). Furthermore, the level of poverty can also determine access of the poor people to financial services depending on the approach adopted by the financial institution at their disposal. For the poorest of the poor, their level of poverty will hinder them from accessing the financial institutions which depth of outreach is not their target. This means the poorest of the poor will be left out (Armendriz & Morduch, 2009).

2.3.2 Microfinance as a Way of Addressing Access Barriers

Microfinance evolved from the microcredit concept which was an idea introduced by Muhammad Yunus, the Nobel Prize winner in Bangladesh (Duvendack, et al., 2011). Initially the services provided under the microcredit schemes were small loans provided to poor people as a means of reducing poverty (Duvendack et al, 2011). Over the years the services provided changed to include savings funds, insurance, remittances as well as training and development of skills programs (Hermes and Lensink, 2007; Armendriz & Morduch, 2009; Duvendack et al, 2011). Therefore, microfinance institutions can be distinguished from other financial institutions based on their focus on small loans and target on poor people (Motete, 2024). Their development is based on the concept that poor people have been left behind from access to adequate financial services from commercial banks (Hermes & Lensink, 2007; Imai et al, 2010).

One of the criteria used to assess the effectiveness of the microfinance institutions in reaching poor people is the degree of outreach (Meyer et al, 2000). Different mechanisms have been adopted by the microfinance institutions in order to enhance depth of outreach. According to Siwale and Umoru (2026) and Shankar (2013) the mechanisms include the provision of products which favour the poorest of which can be achieved through use of group lending, small and frequent loan repayment amounts as well as non-requirement of collateral; regular visits to the clients so as to enhance physical access; reliance on neighbour reference and address check to reduce need for documentation; training of the customers; group meetings to facilitate sense of security to customers and transparency; and effective communication through drawing of loan officers from the local community.

Although some of the microfinance institutions have started to adopt the individual based lending, the mostly adopted approach is the group lending with joint liability. In the earlier approach the microfinance institutions lend some money to an individual (Beck & Demirgüç-Kunt, 2008). According to Beck and Demirgüç-Kunt (2008) this methodology has been adopted especially where the customer's needs differ from the group's needs. Information costs under this methodology are reduced through relationship lending as a result of regular contacts between the microfinance institutions and the customers as well as making regular repayment as incentive for future loans (Hermes & Lensink, 2007).

In group based lending the microfinance institution lends some money to a group of people who normally live within the same neighbourhood (Hermes & Lensink, 2007; Shankar, 2013). According to the authors, the loan is provided to an individual person but repayment of the same is a joint responsibility of the whole group. This is considered to be a cheaper and efficient approach as the members know each other, hence self-screening and monitoring among the borrowers can be easily done (Hermes & Lensink, 2007). However, despite being the most popular approach, group lending can cause exclusion of the poorest as it does not consider resources such as time and energy spent by the borrowers who leave far from each other (Marr, 2004 in Hermes & Lensink, 2007). Moreover, the group loans are not considerate of the individual borrower's needs, hence making it difficult to adapt (Hermes & Lensink, 2007).

The study by Jaiswa (2022) found that microfinance institutions (MFIs) significantly contribute to reducing poverty and enhancing living standards, primarily through job creation and promoting savings. The research highlights that low-income individuals are capable of saving when provided with the right opportunities and incentives. These savings enable them to build assets for both business and household needs, while also generating interest income. To ensure effective management, the study recommends that MFIs proactively address operational challenges, such as clearly defining roles, recruiting and training staff, monitoring performance, and fostering a supportive organizational culture that motivates employees (Grubbauer & Mader, 2021)

The study by (Sharma et al., 2021) explores the potential and obstacles associated with microfinance as a strategy for poverty reduction. Findings reveal several challenges, including unsuitable regulations, intense competition, a growing diversity of financial products, profitability concerns, operational instability, weak oversight within microfinance institutions, limited funding from donors, inherent borrower default risks, and insufficient awareness among borrowers about microfinance programs. Despite these issues, microfinance contributes to inclusive national development by reducing poverty and improving the living conditions of disadvantaged populations through access to financial resources.

III. METHODOLOGY

3.1 Introduction

This research is explanatory and hence it intends to explain the causal relationship between the housing microfinance approaches and access to housing finance by the poorest people. Different from descriptive and exploratory researches, which simply describe and investigate on a problem which has not been defined clearly respectively, explanatory research, always intends to investigate the causality of the already known phenomena.

3.2 Research Strategy

Selecting a research strategy is an important stage in conducting research as the strategy directs the way the research is going to be carried out so as to come up with valid answers to the research questions (Verschuren et al., 2010). For this research, the comparative case study has been used with two cases (the housing microfinance institutions namely WAT SACCOS and HFHT) forming the units of analysis. According to Verschuren et al. (2010, p. 180) “a case study is a strategy that tries to gain a profound and full insight into one or several objects or processes that are confined in time and space”. Therefore this strategy is used so as to facilitate understanding of the variations in approaches adopted by the Housing Microfinance Institutions in Tanzania and the way they lead to variations in access to housing finance by the households with the poorest asset profiles. The study compares the two different Housing Microfinance Institutions so as to verify whether one institution can be distinguished from the other in terms of its ability to accommodate the poorest households; hence a comparative study. Moreover, the strategy is based on a co-variation approach as the study aims at explaining the way the independent variables (microfinance approaches) affect the depend variable (access to housing finance).

3.3 Research Methods

The type of research method to be adopted is determined by the type of information required by the research. This research has combined both the qualitative and the quantitative research methods. The need for obtaining information about households’ assets and the way they have facilitated their access to housing finance entails collection of quantitative data. On the other hand, the need for obtaining in-depth information on the operation of the housing microfinance institutions entails collection of qualitative data, which were obtained from the housing microfinance institutions under study. Use of secondary data was also necessary as a way of validating the research as well adding more information. This has also formed part of the triangulation method.

3.4 Sampling

For research to be efficient and practical it is always important to select a study area (Marshall, 1996). However, in order for the study to be able to be generalised back to the population, it is important to draw a sample which is a representative of the population (Marshall, 1996). Thus the most common sampling method is random or probability sampling as the population is well defined and there are equal chances for all the members to be selected (ibid). However, this study adopted the convenience sampling method. This method was adopted due to availability and willingness of the clients to participate in the research exercise. Moreover given the limited research time this was a convenient and easier method to adopt.

A total of eighty (80) clients were selected, forty (40) from each institution. Although the aim was to involve 100 people but again due to willingness of the people and time factors only 80 respondents could be reached (40 from each institution). This is an acceptable number for statistical analysis especially using SPSS as the minimum number of respondents required for the program to yield acceptable results is 30. However, despite the fact that this sample is reasonable enough to allow for statistical analysis it is not a true representation of the whole population hence some of the statistical results might not reflect the reality.

3.5 Validity and Reliability

One of the challenges facing the case study research is ensuring validity and reliability. Data collection, processing and interpretation are highly influenced by the researcher and this can affect the validity of the research

findings (van Thiel, 2021). Use of interviews as a data collection method has been done carefully so as to avoid bias which might affect reliability. In this study, unwillingness of people to participate in the research as well as unreliable information due to fear of disclosing their personal information might have also affected reliability and validity of the research findings. These challenges are also supported by van Thiel (2021). Apart from that, difficulty in obtaining information concerning households' income was also another limitation.

Challenges related to validity and reliability has been dealt with through application of mixed method design known as "triangulation". As put by van Thiel (2021, p. 52) "a tested means of enhancing validity and reliability is triangulation". This refers to the application of more than one method or source to double/triple check the data collected as well as the research results (van Thiel, 2021). Triangulation has been achieved in this research through the data from households, information from the Housing Microfinance Institutions (WAT SACCOS and Habitat for Humanity Tanzania) as well as information from literature.

3.6 Data Collection Methods

Different types of data were collected through different data collection methods as explained in this section. Primary data were collected from the field with assistance from one research assistance. However, visit of the respondents' areas of residence was done so as to physically observe the type of houses and the general neighbourhood. The methods used to collect data include interviews and survey. Secondary data included reports from the Housing Microfinance institutions, statistical information on poverty as well as other literature related to this research.

3.7 Data Analysis Methods

Use of quantitative data entails statistical data analysis. In this case the Statistical Package for Social Sciences (SPSS version 25) has been used to analyse quantitative data. Qualitative data has also been coded and included in the analysis to qualify the SPSS results. For quantitative analysis, after preliminary activities such as data check and cleaning were done, aggregation of indicators was done so as to establish variables for enabling data analysis process. Reliability analysis was also done so as to ensure internal consistency. In other words the analysis is used to measure how close a set of indicators are related when considered as a group. The results for reliability analysis done for various variables showing their *Cronbach's alpha* values ' α ' are presented in Table 1 in the annex. For internal consistency to be attained the *Cronbach's alpha* value (α) is supposed to be ≥ 0.7 . However, for this study the *Cronbach's alpha* value of up to 0.3 was used depending on how close the indicators are related. Moreover, some indicators which provided the lowest ' α ' value were considered independently due to their importance in answering the research questions.

IV. FINDINGS & DISCUSSION

4.1 Clients Coverage

4.1.1 Number of Clients

Both WAT SACCOS and HFHT operate in Dar es Salaam City with HFHT extending its operations in Mkuranga which is one of the Coast region's District. Up to June 2016 WAT SACCOS had 14,000 members with number of registered home improvement loan clients increasing from 7 in 2009, 848 in 2010 to 1266 in 2011 and eventually reaching 2,100 in 2016 (Humanity, 2026). On the other hand The MAKAZI BORA project which started in 2009 aimed at reaching 4,000 clients by 2012. In November, 2009 there were 300 registered clients, 925 in 2010 and up to June 2011 there were 1,230 registered clients and 621 active clients. However, data shows that up to June 2016 it has reached 2559 registered clients with current active clients being 750 (Humanity, 2026).

For the case of this thesis the registered clients include all the clients who have been offered home improvement loans and the active clients include those who still have outstanding loan balances.

Despite the fact that WAT SACCOS started housing microfinance earlier than HFHT the later has covered more clients. This is also illustrated in Figure 2. Although the difference in number of clients that are served by the two institutions is minimal and hence a need for further analysis, this can be an indication that HFHT is more breadth oriented as compared to WAT SACCOS. As put by Quayes (2012), breadth of outreach aims at creating access to microfinance for a larger number of poor households.

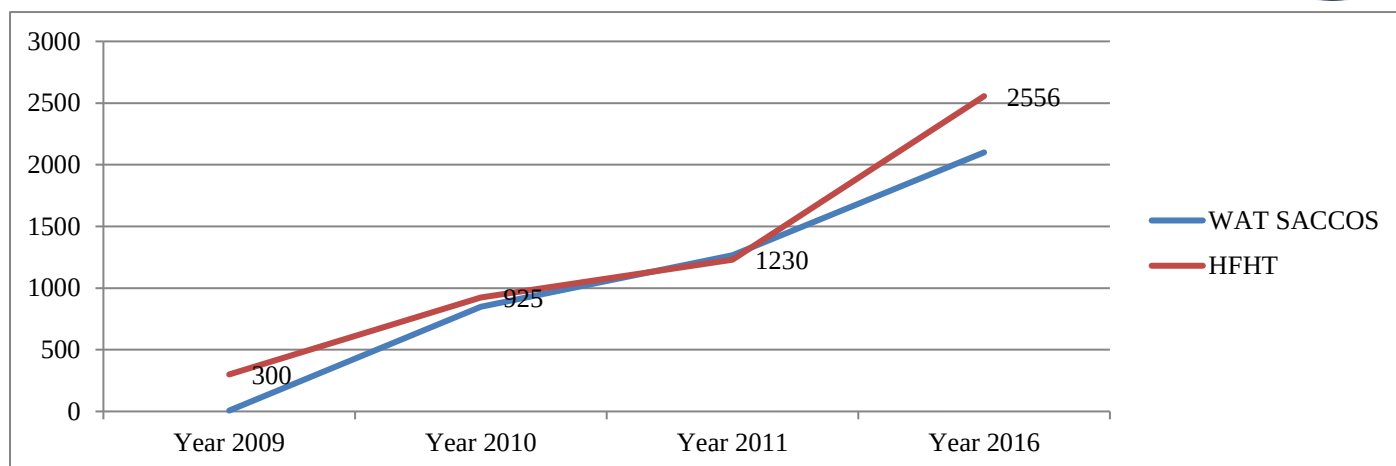


Figure 1
Clients Coverage

4.1.2 Target Group

One of the characteristics of microfinance is targeting the poor who have no access to formal financial services provided by commercial banks. Both WAT SACCOS and HFHT target the urban poor. However, they differ in the level of poverty that they consider. While WAT SACCOS targets households with income of less than US\$ 1 per day, HFHT targets those earning less than US\$ 5 per day which is an indication that WAT SACCOS has more depth of outreach than HFHT. This is also confirmed by a study done by HFHT Report in 2011 which reported that 50% of HFHT clients were earning between US\$ 1-3 per day and those who were earning less than US\$ 1 per day were very few as shown in Figure 2.

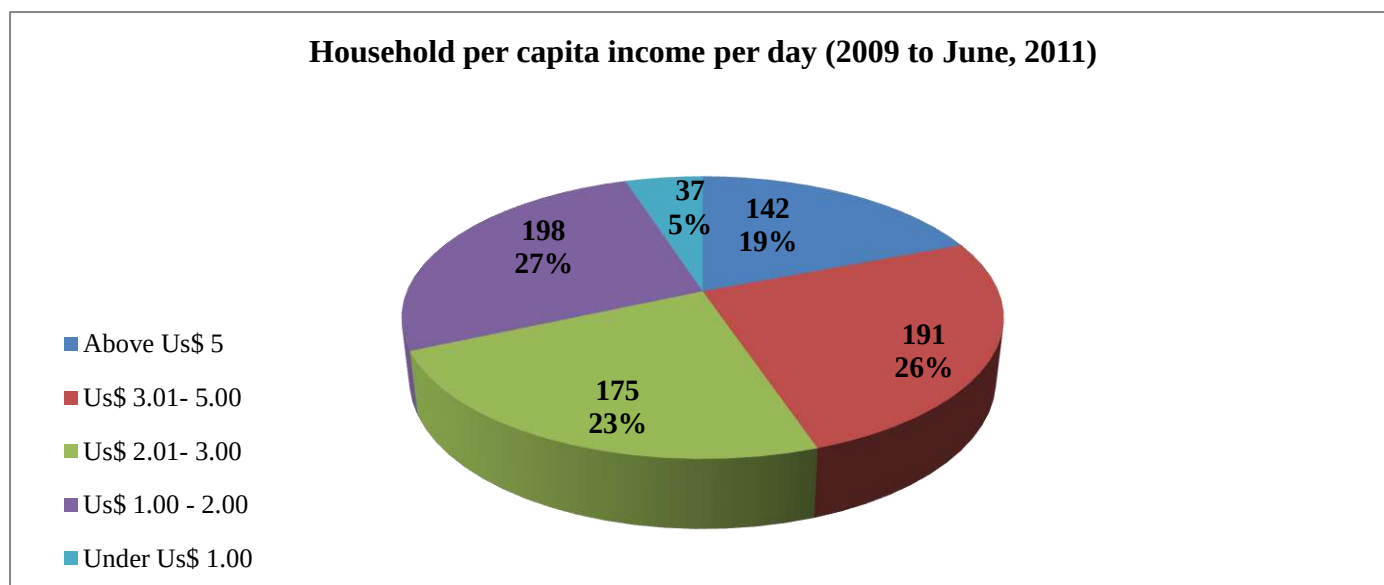


Figure 2
HFHT clients' per Capita Income.

According to the Magambo (2024) poverty level in Tanzania base on the national basic needs poverty line which is estimated at TZS 36,482 (US\$ 17) per adult per month and the national food poverty line which is estimated at TZS 26,085 (US\$ 12) per adult per month (Magambo, 2024). These are the poorest people who if they are considered per day they are all below US\$ 1. Thus, by targeting people who earn less than US\$1 per day, WAT SACCOS is more depth of outreach oriented as these are considered to be the poorest as per poverty level measures in Tanzania. On the other hand HFHT is more breadth of outreach oriented as it targets more of the poor people rather than the poorest which is different from what it was presumed to be.

4.1.3 Mechanisms used to Screen Clients

In assessing eligibility of her clients, WAT SACCOS considers the socio economic profile of the client which also helps in determining affordability level. Employment status, amount of income received per month as well as

sources of income are some of the important factors that are considered. Moreover, affordability depends on the cost, size and the nature of the housing project; whether it is a new construction project or just upgrading of the existing structures. HFTH also uses the salary slips as well as business records and other family expenditure patterns to assess eligibility of their clients. However, amount of loans that the institution has provided to her clients indicates that there are people who are not eligible as per the income criteria of less than USD 5 per day who have been granted loans. Humanity (2026) report also indicated that the organization does not exclude clients with more than US\$ 5 income per day hence justifying that the institution is breadth of outreach oriented.

4.2 Loan Products

The housing microfinance loans that are provided by these institutions are geared towards a range of activities from home improvement to improvement of services that are connected with housing. However, they differ in some aspects. On the one hand WAT SACCOS provide loans for purchase of land, housing construction as well as housing improvement. On the other hand HFHT provides housing loan products for already in progress projects. It does not provide loans for purchase of land. When elaborating on this, HFHT credit officer narrated that;

“We do not provide loans for purchase of plots or for those who have not started the construction process and thus we normally do site visits before offering loans to clients to make sure that there are ongoing construction activities on the site” (Nathan Kaizirege, personal communication, 14 December, 2025).

According to him the loans are provided for extension of additional rooms; completion of some parts of the house such as roofs, doors and windows; finishing the house by flooring, plastering, ceiling and connection of utilities; repair or upgrading of damaged or worn out housing components as well as for environmental related projects such as landscaping and gardening. However, this study focuses on home improvement loans only which are provided by both institutions.

4.3 Types of Improvements

As already indicated, this study focuses on home improvement loans and Table 1 shows types of improvements done by the clients of the two institutions. As shown in that table 40% of the WAT SACCOS clients, used the loans for adding number of rooms, whereas majority of the HFHT (30%) used the loan for fixing of roofs. Data show further that 55% of the HFHT clients used the loan for finishing works such as flooring, ceiling, painting, plastering just to mention a few (Humanity, 2026), whereas majority of WAT SACCOS clients upgraded their houses by increasing the sizes of the rooms, height as well as carrying out major renovations (Kyessi & Furaha, 2010). This explains that majority of the WAT SACCOS clients had inadequate accommodation as compared to those of HFHT which can also explain the different levels of poverty between the two groups of clients.

Table 1

Types of improvements made using the loans

Institution	Improvements made to the house						Total
	Adding new rooms	Fixing the roof	Fixing the walls	Repair of floors	Adding utilities	Others	
WAT SACCOS	16 (40%)	7 (18%)	5 (13%)	1(3%)	9 (23%)	2 (5%)	40
HFHT	9 (23%)	12 (30%)	10 (25%)	3 (8%)	4 (10%)	2 (5%)	40
Total	25	19	15	4	13	4	80

4.4 Lending Methodologies

WAT SACCOS uses both individual as well as group lending methodologies. Interview with WAT SACCOS loan officer revealed that standard solidarity group model is used in which borrowers form themselves in groups of five (5) to six (6) people who live in the same neighbourhood. However, loans are granted to individuals within the group but members guarantee each other. This mechanism is used to ensure repayment of loans as the social pressure among the group members ensures that repayments are made in time and the guarantors are liable to pay back the loan in case the borrower defaults. Data from survey shows that all WAT SACCOS borrower were granted individual loans under the standard solidarity approach. On the other hand HFHT uses individual lending approach only, but with the requirement of one guarantor as one of the loan conditions. This was also proved by all the HFHT clients.

Group lending has proved to reach the poorest that are not able to meet the collateral requirements needed for individual loans. Although in some cases group lending can exclude the poorest as they are perceived as the riskier members but in Bolivia group lenders have reached the poorest clients as compared to individual lenders hence proving to have more depth of outreach (Acash, 2026). Therefore the solidarity group model adopted by WAT SACCOS which is a form of group lending indicates that this institution is depth of oriented.

4.5 Loan Conditions

Each housing microfinance institution has set its conditions which have to be fulfilled by the clients before the loan is provided. Non adherence to any of these conditions may cause rejection of the applicant or for some may equate to breach of conditions which might lead into legal actions being taken against the borrower. However, these conditions according to interviews done by officials of the two institutions were set by considering the nature of their clients, operating costs, risks as well as directives provided by The Tanzania Association of Microfinance Institutions. The conditions are discussed hereunder:

4.5.1 Loan Size

The amount of loan provided is dependent on the income of the clients whereby after calculations the remaining income should not be less than 25% of the total income. The amount of loan to be granted depends on the loan phase and they differ depending on the institution as narrated in Table 2.

Table 2

Loan Sizes

Institution	Loan phase	Minimum loan	Maximum loan
WAT SACCOS		0	4,000,000
HFHT	1 st loan	200,000	5,000,000
	2 nd loan	200,000	8,000,000
	3 rd loan	200,000	10,000,000

Table 2 shows the current minimum and maximum loans that are provided by the institutions under study. For the case of HFHT the rates have been implemented from January 2015. Before that the minimum loan for all phases was TZS 200,000 and the maximum were 800,000; 2,000,000; and 3,000,000 for the first, second and third loans respectively. Ideally, income levels would be an ideal measure of depth of outreach. However, difficulties involved in getting information on income render loan size to be the mostly used as a proxy for depth of outreach (Quayes, 2012). There is a correlation between the size of the loan and the level of income of the borrower as the amount of loan granted depends much on the income of the borrower. Based on this it can be concluded that the poorer the borrower the smaller the size of the loan, the greater the depth of outreach (Quayes, 2012)

Moreover, survey results show that majority of WAT SACCOS clients (65%) were granted loans of between TZS 400,000 and 1,000,000 as compared to the majority HFHT clients (33%) who were offered loans of between TZS 2,000,001 and 3,000,000. The same data shows further that none of the WAT SACCOS received more than TZS 3,000,000 whereas more than 15% of some of the HFHT clients received between TZS 4,000,001 and 6,000,000. Furthermore, the study done in 2010 by Kyessi and Furaha indicated that the loan disbursed to WAT SACCOS borrowers ranged between TZS 150,000 and 3,000,000. Therefore, based on the argument that the smaller the loan size the greater the depth of outreach, WAT SACCOS proves to be depth of outreach oriented.

An independent-sample t-test was conducted to determine if there were differences in the amounts of loan between the clients of WAT SACCOS and those of HFHT. Results revealed that there is a statistically significant difference in loan amounts offered to clients between the WAT SACCOS with ($M=1.4$, $SD=0.59$, $SE=0.09$) and those of HFHT with ($M=2.65$, $SD=1.33$, $SE=0.21$); $t(78) = -5.429$, $p=.000$, i.e. $p < 0.05$, representing effect size $r = 0.52$ (See Table 1 and Table 2 in the Annex). This means that at 5% level of significance WAT SACCOS clients have on average lower loan sizes as compared to those of HFHT. Based on the argument that loan sizes indicate level of poverty, the results signify statistically that there is a relationship between loan sizes and depth of outreach and thus WAT SACCOS has more depth of outreach as compared to HFHT. In other words the results confirm the argument made by other studies that the lower the loan sizes the greater the depth of outreach.

Moreover, in order to discover whether the effect was substantive the t-statistics were converted into a value of “ r ”. As the values of “ t ” and “ df ” are provided in the SPSS output (as shown in Table C2 in the Annex) the value of “ r ” can be computed by using the following equation.

$$r = \sqrt{\frac{t^2}{t^2 + df}}$$

NB: This equation will also be used to calculate the value of “ r ” in the next statistical analyses.

However, despite these statistical results, an interview with HFHT official revealed that about 71% of their clients have been granted loans ranging between TZS 200, 000 and 1,000,000. An increase in the size of loans granted

by HFHT in 2015 conforms to the argument made by Quayes (2012) that the microfinance institutions which have increased their loan sizes have gradually decreased their depth of outreach. This might also be case as the data were collected mostly from the active clients, who were making repayments of their loans which were granted after the increase in the size of the loan.

4.5.2 Loan Repayment

According to interviews, loan repayments for both institutions are done monthly for the duration of between 12 to 18 months for WAT SACCOS and 6 to 24 months for HFHT. This is also the case with the survey results which show that majority of clients from both institutions (77.5% from WAT SACCOS and 60% from HFHT) fall in the 12 months loan duration category. Choice of duration is on the client, but it also depends on the amount of loan and monthly payments which are supposed to be not more than 25 % of the clients' monthly income. Repayment amount is agreed upon by the borrower and the institution by considering his/her income. For WAT SACCOS borrower's saving capacity also determines the loan repayment arrangements. For instance, if saving capacity is TZS 50,000 per month it implies that he/she can service the loan by the same amount monthly. However, for HFHT Repayments are made through bank and there is flexibility in payment as the clients can make the payments weekly provided at the end of the month the monthly instalment is met. On the other hand, WAT SACCOS has more flexibility in terms of both payment schedules as well as modes of payments. Clients can pay anytime provided they meet the agreed monthly instalments and payment can be through the bank or by electronic transfer through mobile phones.

An independent-sample t-test was conducted to determine if there were differences in repayment periods between the clients of WAT SACCOS and those of HFHT. Results indicated that there is a statistically significant difference in loan repayment periods between WAT SACCOS with (M=11.53, SD=1.65, SE=0.26) and those of HFHT with (M=13.28, SD =2.93, SE=0.46); $t(78) = -3.295, p=.001$, i.e. $p < 0.05$, representing effect size $r 0.35$ (See Table 3 and Table 4). This means that at 5% level of significance there is statistically significant difference with WAT SACCOS showing lower means hence shorter periods as compared to HFHT. With average shorter repayment periods WAT SACCOS is more favourable to the poorest hence deeper outreach as according to Navajas et al. (2000) the poorest are attracted to loans with shorter and frequent repayment schedules due to their lower incomes which are also unpredictable.

Table 3

Loan Duration – Group Statistics

Loan Duration	Institution	N	Mean	Std. Deviation	Std. Error Mean
	WAT SACCOS	40	11.53	1.648	.261
	HFHT	40	13.28	2.926	.463

Table 4

Loan duration – T-test

Loan Duration	Levene's Test for Equality of Variances		t-test for Equality of Means						
			t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig						Lower	Upper
Equal variances as assumed	19.392	.000	-3.295	78	.001	-1.750	.531	-2.807	.693
Equal variances not as assumed			-3.295	61.486	.002	-1.750	.531	-2.812	.688

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

Microfinance has been professed as a solution for access to finance especially to the poor people who do not have access to formal financial services. However, despite the microfinance motive of focusing the poor, it is argued that in some cases microfinance institutions have failed to provide services to some individuals who are financially excluded, especially the poorest because of the approaches they use. This thesis intended to investigate on whether there is a relationship between the approaches adopted by the housing microfinance institutions which is a branch of microfinance and the poverty levels of their clients by considering their asset profiles. More specifically, the study was

intended to confirm the argument that the institutions with depth of outreach orientation allow the inclusion of the poorest clients in their programmes much more as compared to those with breadth of outreach orientation.

In Tanzania housing microfinance is growing slowly with fewer institutions engaging in the provision of varieties of loan products. Of these products, housing improvement loan has attracted many poor clients who construct their houses incrementally. By comparing the two institutions (WAT SACCOS and HFHT) and by examining the asset profile of the 40 clients from each institution, it was revealed that the housing microfinance institutions which are depth of outreach orientated include the poorest clients much more than those with breadth of outreach orientation. In this case WAT SACCOS has been found to be oriented towards depth of outreach and HFHT oriented towards breadth of outreach. By targeting the poor through provision of small loans with short repayment periods and less stringent conditions most of the poor people and especially the poorest are expected to have access to housing finance through these housing microfinance institutions. Generally, findings showed that all the two institutions target the poor and through their targeting mechanisms the poorest are also included. However, with HFHT widening their target to include those earning up to US\$ 5 per day and by considering that the country's poverty line is below US\$ 1 per day, this institution has more breadth of outreach as compared to WAT SACCOS which targets those earning less than US\$ 1 per day who are below the poverty line.

However, targeting alone does not suffice to explain the relationship between the approaches adopted by the institutions and the type of clients that they serve. The extent at which the poorest are included requires assessment of the clients' poverty level. This thesis has used the livelihoods approach which advocates for considering the assets which the poor households command when determining their poverty levels. For the purpose of this research four assets were considered which include the human capital, the financial capital, the social capital as well as the physical capital. From the findings it has been revealed that the lending methodologies affect the inclusion of the poorest with the group lending allowing for more depth of outreach. Although the two institutions use individual lending for housing improvement loans, the group solidarity approach adopted by WAT SACCOS as a form of group lending has enhanced the access of the poorest. The screening done through the group and the method of guaranteeing done by the two group members to a larger extent has eliminated the emphasis for physical collateral especially in the form of landed property as it is in the case of HFHT. The potentiality for deep outreach is higher in group lending as it has the ability of substituting joint liability for physical collateral. Based on the discussions in this paper, it suffices to conclude that there is a relationship between the approaches adopted by the housing microfinance institutions in Tanzania and level of poverty of their clients. The approaches adopted can enhance inclusion of the poorest people in the housing microfinance programmes and hence the deeper the outreach methodologies the more the access to the poorest.

5.2 Recommendations

There is growing recognition that housing concerns affecting the urban poor need to be integrated into urban development planning and political priorities. Elected officials and advocates for urban development are encouraged to incorporate housing matters into their policy platforms and action plans. Housing should be promoted as a fundamental right, given equal importance alongside issues such as gender equality and broader development goals.

All parties involved in delivering housing solutions are urged to view homes not just as shelters but as tools for alleviating poverty. Microfinance institutions focused on housing can serve as bridges between major financial entities—such as commercial banks—and low-income individuals, helping the latter gain access to housing finance. While the government continues to take an enabling role, setting policies and frameworks, the private sector drives national development with its substantial resources. Meanwhile, civil society organizations bring specialized knowledge and proven experience in addressing community-level challenges.

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Indigenous knowledge systems and ecological stewardship: Preservation, traditional practices, and sacred landscapes in the Northern Tinderet–Nabkoi Forest, Kenya

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ABSTRACT

Native knowledge systems contribute greatly to the conservation and sustainable management of forest ecosystems, especially where the community engages in centuries-old cultural relationships with the environment. The paper looked at the indigenous knowledge systems in ecological stewardship in Northern Tinderet–Nabkoi Forest in Kenya. The findings were guided by actor–network theory; it adopted the qualitative research design. The target group was composed of community people with great ecological and cultural knowledge, such as elders, herbalists, diviners, women who hold medicinal knowledge, local administrators, and community forest association members. The research used purposive sampling in order to come up with respondents with specialized ecological knowledge applicable in the research objectives. Data were gathered using the semi-structured interviews, key informant interviews (KIIs), and focus group discussions (FGDs). Thematic analysis was used to analyze data and consisted of identifying repetitive patterns, concepts, and categories related to their respective research objectives. The study took a desktop research approach on secondary information in the form of scholarly publications, policy reports, and literature available on indigenous ecological practices. The research particularly addressed the continuation and passing of indigenous knowledge systems, traditional ecological practices leading to the conservation of biodiversity, and how belief systems and sacred landscapes can be pursued to take care of the environment. The results indicate that the indigenous knowledge is maintained on the basis of oral traditions, cultural rites, and the mentorship of the generations, and older people and females are the main agents of knowledge transfer. Rotational utilization of resources, agroforestry, controlled burning, and totemic taboos are traditional practices that add up to conservation of biodiversity. Moreover, belief systems, sacred groves, and environmental rituals are cultural processes that control how human beings interact with the forest ecosystem. Modernization, formal education systems, and religious change have, however, undermined traditional methods of knowledge transmission. The paper concludes that incorporating the indigenous knowledge systems in the contemporary conservation policies can help to improve the sustainable forest management without eroding cultural heritage. The study recommends that the policymakers and conservation authorities should take an active part in liaising with the local elders, women, and ritual experts to formulate inclusive conservation policies and frameworks that observe cultural values and traditional governance practices.

Keywords: Ecological Stewardship, Indigenous Knowledge Systems, Preservation, Sacred Landscapes, Traditional Practices

I. INTRODUCTION

Forests are important ecological units, which sustain biodiversity, control climate patterns and offer livelihoods to most of the communities across the world (Oldekop et al., 2020). In Africa, especially in the rural areas, forest is used not only as an economic resource, but also a cultural landscape that is entrenched in the indigenous ideologies and beliefs. Communities that co-exist with forest ecosystems have continued to come up with indigenous structures of knowledge that inform sustainable management of resources and conservation of the environment (Wiersum, 1997). Indigenous knowledge can be defined as the accruing body of a knowledge, beliefs, and practices which have been formed by local communities and are the result of years of interaction with the natural environment. This learning is normally passed on by the oral traditions, cultural rituals, and institutional social structures. Indigenous ecological knowledge is a key aspect in controlling land use, preserving biodiversity, and ecological balance in most African communities (Sinthumule, 2023).

The Northern Tinderet–Nabkoi Forest is a suitable and significant ecological landscape where the native knowledge systems have traditionally informed the forest management. To maintain the forest ecosystem, local communities have fallen on traditional ecological systems like sacred grove protection, restrictions on harvesting at certain seasons, agro forestry systems, and environmentally oriented rituals. These are practiced so hard ingrained in the cultural beliefs and social norms that encourage the respect of nature and collective custodianship of natural resources (Chandran & Hughes, 1997).



But due to the rapid social change and the changes in modernization, formal education systems and economic changes, the traditional channels of knowledge transmission have broken down. With the younger generations progressively adopting modern ways of life and propensity to formal education systems, the survival of indigenous ecological knowledge is under the risk more and more (Dutton, 2004). This change has a great impact on the sustainability of forest ecosystems that earlier relied on the traditional environmental governance. It is thus significant in know the role of the indigenous knowledge systems in saving the forests so that inclusive policies on the environment can be formulated that combine both the traditional and scientific views of the ecological management.

1.1 Statement of the Problem

Environmental stewardship and the protection of biodiversity in communities surrounding the Northern Tinderet-Nabkoi Forest in Kenya have always been based on indigenous knowledge systems. Local people have a long history of controlling the utilisation of forest resources and ensuring ecological balance through oral traditions, cultural practices, sacred groves, and traditional rules. Activities like rotational resource utilization, agro forestry as well as the safeguarding of sacred landscapes have played a bigger role in biodiversity protection. Even these indigenous systems are getting endangered by the process of modernization, formal education, migrating to urban areas and changing cultural and religious orientations that have diluted traditional channels of knowledge delivery. With less involvement by the younger generation with the indigenous ecological practices, there is the risk that the pertinent environmental knowledge will be lost. Moreover, it is important to note that most of the formal conservation policies still stick to the scientific methods at the expense of not appreciating the role of the belief systems and knowledge systems in ecological stewardship in terms of knowledge transmission and traditional ecological practices within the Northern Tinderet-Nabkoi Forest. This paper thus looks at these indigenous processes and their role in preserving forests in a sustainable manner.

1.2 Research Objectives

- i. To examine the mechanisms used in the preservation and transmission of indigenous ecological knowledge in the Northern Tinderet–Nabkoi Forest region.
- ii. To analyze the traditional ecological practices that contribute to biodiversity conservation in the Northern Tinderet–Nabkoi Forest.
- iii. To evaluate the role of belief systems, rituals, and sacred landscapes in promoting ecological stewardship within the forest ecosystem.

II. LITERATURE REVIEW

2.1 Theoretical Review

The theoretical viewpoints on which the study is based describe the association between human societies and ecology. The concept of indigenous ecological knowledge is rather often presented in terms of frames, which acknowledge the interdependence of cultural practices, environmental governance, and community-based management of resources (Ossai, 2024). Environmental anthropologists and political ecology scholarly communities concur that the locally based solutions to environmental issues are found through indigenous knowledge systems because they are a product of long-term relationships between peoples and ecosystems (Andersson, 2016). Such systems focus on shared responsibility, culture, and ethical standards that govern how natural resources are used.

Traditional ecological knowledge can also be used to indicate adaptive management practices that help communities to adapt to changes in the environment without disrupting the balance in the environment (United Nations Environmental Programme [UNEP], 2020). An example of how cultural institutions can be used as good systems of environmental governance is practices like seasonal harvesting, sacred forest protection, rotational management of resources, and communal management of resources (Latour, 2005). The interpretation of indigenous ecological knowledge thus needs a theoretical framework that acknowledges the interactive processes between social actors, ecology resources, and institutions of cultural knowledge.

2.1.1 Actor-Network Theory (ANT)

The Actor-Network Theory (ANT) offers an efficient approach to the explanation of intricate interactions between human actors, cultural institutions, and ecological systems. Created by such thinkers as Bruno Latour in 2005, Michel Callon in 1986 and John Law in 1992. ANT focuses on the idea that social and environmental systems are formed as a result of a network of interactions between human and non-human actors (Latour, 2005). Actors in this framework are not restricted to people and they are objects, technologies, natural resources, and cultural practices all of which have an influence in networks (Díaz & Urquhart, 2010).



The ANT states that in a network, an individual, community, institution, natural resource and cultural rituals are actors that interact in a manner that co-produces outputs in both a social and ecological system (Latour, 2005). These networks include community elders, herbalists, spiritual leadership, forest ecosystem, sacred landscapes, cultural practices, as well as traditional institutions of governance in the context of indigenous forest conservation (Osebor, 2024). The human or non-human actors all contribute to environmental behavior, transmission of knowledge, and the outcome of resource management. In the Northern Tinderet-Nabkoi Forest area, ecological responsibility is a result of these interactions. An example of sacred groves is not merely a ecological space but a cultural actor that shapes the behavior of humans by the means of taboos and spiritual beliefs (Tatay & Merino, 2023). Similarly, rituals, oral narratives, and clan totems are mechanisms that control forest utilization, ethical standards, and strengthen environmental knowledge (Sinthumule, 2023). ANT hence permits an insight in sustainability as a result of the dependency of connections between social institutions, cultural standards, and ecological bodies (Dwiartama & Rosin, 2014). Using ANT, this paper realizes that the indigenous ecological knowledge is not simply embedded in human actors, but it is also put into practice, both literally and spiritually, through non-human resources like sacred trees, ritual sites, and biodiversity. This approach emphasizes the co-construction of cultural, social, and ecological systems and the need to include human and non-human actors in the conservation strategies of forests (Berkes, 2017).

2.2 Empirical Review

The literature of empirical studies conducted in Africa indicates the importance of local knowledge systems (IKS) in the conservation of the environment, protection of biodiversity, and sustainable use of resources. Research has shown that these knowledge regimes reside in cultural practices, rituals and community governance systems that govern the relationship between humans and the natural ecosystem (Berkes *et al.*, 2000).

2.2.1 Mechanisms of Preservation and Transmission of Indigenous Knowledge

Various works have highlighted the fact that indigenous ecological knowledge is preserved and most importantly passed down to the younger generation through oral culture, elder tutelage and through community based practices. Kim *et al.*, (2017) emphasize that the most important aspects of the knowledge transfer include storytelling, proverbs, initiation ceremonies, and demonstrations in the activities associated with forests. On the same note, Ruddle (1993) also states that not only does oral transmission assists in the learning process in the ecological context, but also strengthens the cultural identity and moral principles. Gender roles also influence the inquiry of knowledge and in most cases, women are the ones who do the identification of medicinal plants, herbal preparation, and other rituals linked to fertilities and land management (Pfeiffer & Butz, 2005). In spite of these processes, current literature points to the continuity gaps of indigenous knowledge associated with the processes of modernization, formal education, and urban migration that break the traditional channels of transmitting the knowledge (Hoppers, 2002). This is the gap that the study will fill by recording and examining how exactly ecological knowledge is maintained and passed on in the Northern Tinderet-Nabkoi Forest, including not only human (elders, women, ritual specialists) but also non-human (sacred trees, ritual sites) actors.

2.2.2 Traditional Ecological Practices Supporting Biodiversity Conservation

As empirical evidence demonstrates, the indigenous people use traditional ecological practices, which are closely related to biodiversity preservation. Tayade (2025), underlines that the rotational resource utilization, agroforestry, preservation of sacred forests, and seasonal taboos are the practices that are based on the holistic worldviews that combine environmental ethics with cultural identity. Teague and Kreuter (2020), discovered that sacred groves, such as providing refuge to plants and animals, rotating harvest and controlled burning help in ecological balance and soil fertility. Species are also preserved against excessive exploitation by totemic systems in which some animals or trees are regarded as sacred (Mandillah & Ekosse, 2018). The practices are however challenged by external forces that include commercial logging, agricultural development and conservation policies that marginalize the local practices (Harrop, 2007). The gap in this study is the attempt to find out what are the specific traditional practices in the Northern Tinderet-Nabkoi Forest and how they positively affect ecological sustainability, thus bridging empirical information with modern conservation requirements.

2.2.3 Role of Belief Systems, Rituals, and Sacred Landscapes in Ecological Stewardship

Indigenous management of forest resources is based on belief systems, rituals and sacred landscapes. According to the studies by Ormsby and Ismail (2015), sacred groves and ritual forests are ecological and cultural agents, such that taboos limit logging, hunting, and other extractive work. The rituals of rainmaking, offering of harvests, and festivals in seasons control the use of resources and strengthen environmental ethics (Oraon, 2021). The involvement in ecological knowledge and practice is about its respect and implementation of human-environment interactions through ritual specialists, such as diviners and herbalists (Ossai, 2024). However, contemporary changes and modernization, as well



as spreading global beliefs, have caused impoverishment in ritualized practices and loss of sacred landscapes and left a gap in ecological management (Anderson, 2016). This research is relevant as it records the importance of belief systems, rituals and sacred places as tools of ensuring ecological management in the Northern Tinderet-Nabkoi Forest, and its application in the modern forest management policy.

III. METHODOLOGY

3.1 Research Design and Approach

The research design used in this study was the qualitative research design as it aimed to investigate aboriginal ecological knowledge systems and their application in conserving forests in Northern Tinderet-Nabkoi Forest region. The qualitative method was suitable as it allowed the in-depth insight into the beliefs of the communities, their cultural practices, and perception of ecological stewardship. Direct interaction with local knowledge holders, such as elders, ritual specialists, and community leaders, provided the study with rich and context-specific data that both explained how knowledge is transmitted and how the region practices ecological practices that are practical (Dodgson, 2017).

3.2 Target Population

The target group was composed of community people with great ecological and cultural knowledge such as elders, herbalists, diviners, women who hold medicinal knowledge, local administrators and community forest association members. The reason why these individuals have been chosen is that they are the people who are engaged in or who are custodians of traditional ecological practices and sacred landscapes and therefore they are also the main sources of information as to how the indigenous knowledge can promote the conservation of the biodiversity.

3.3 Sampling Strategy and Sample Size

The research used purposive sampling in order to come up with respondents with specialized ecological knowledge applicable in the research objectives. Also, the snowball sampling was adopted to get other well-informed individuals based on the recommendations made by initial respondents to have extensive coverage of the ecological practices and belief systems in various societies. There were about 50 respondents and they were comprised of older people, women herbalists, ritual leaders, forest scouts, and the representatives of the youth who are actively involved in the conservation of the forests.

3.4 Data Collection

Data were gathered using the semi structured interviews, key informant interviews (KIIs) and focus group discussions (FGDs). Interviews, FGDs examined the local processes of maintaining and passing ecological knowledge, old traditions which help in sustaining and maintaining biodiversity and the role of belief systems, rituals, and sacred landscapes in environmental management. The interview was carried out using the local languages that were used where necessary and translated into English. They were also able to make observations of sacred sites, ritual forests, and agroforestry activity that they could use to verify verbal discourse with realities on the ground.

3.5 Data Analysis

Thematic analysis was used to analyze data and consisted of identifying repetitive patterns, concepts, and categories to their respective research objectives. The themes were categorized on the basis of the interest of the study of knowledge transmission, ecological practices and systems of belief. Manual coding was done and compared with field notes to enhance consistency. Results were understood and interpreted concerning the existing theoretical models, such as Actor-Network Theory and general literature on indigenous ecological knowledge and community-based conservation (Berkes, 2017; Latour, 2005).

3.6 Ethical Considerations

Ethical practices were also observed. Respondents gave informed consent and confidentiality was ensured through anonymous of person identifiers. When it comes to interviews and visits on the field, respect of cultural norms was noted, especially when it comes to visiting sacred places or talking about rituals. This research project maintained academic integrity since it represented the rightful knowledge of respondents, used secondary literature in a proper way, and did not imply any misrepresentation.



IV. FINDINGS & DISCUSSION

4.1 Preservation and Transmission of Indigenous Knowledge Systems

The indigenous knowledge in the Northern Tinderet-Nabkoi Forest area is highly rooted in oral cultures, rituals and day to day activities that have been developed over years. Herbalists, elders of the community and guardians of sacred locations play a crucial role as the location of such knowledge and as such, the ecological wisdom is transmitted within the family and community system. These cultural practices are also based on cultural traditions and in many cases are connected with moral codes of respect to nature and community stewardship. Ruddle (1993) state that indigenous knowledge is transmitted across generations through informal networks and plays a vital role in the conservation of biodiversity since it creates a strong bond between the community and the surrounding environment. Most of the respondents cited oral transmission as the most prevalent way of maintaining ecological knowledge. This involves narration, proverbs and guidance of the older to the younger in the case of communal meetings, initiation and in day to day interactions in activities concerning the forest. As one elder in Buret village put it:

“Knowledge of plants, animals, and seasons has always been passed from our fathers and grandfathers. We don’t write it down, but we know it in our hearts and teach our children the same way”, (Oral Interview with an elder in Buret, on 15th March, 2025).

Similarly, scholars such as Kim *et al.*, (2017) argue that oral transmission serves not only as a means of passing knowledge but also as an essential component of cultural identity in many African communities. This intergenerational transfer is also gender-sensitive. Women, particularly older women, play a critical role in identifying medicinal plants, preparing herbal remedies, and overseeing rituals tied to rain-making and fertility of the land. A female elder from Kiptumute noted:

“My grandmother taught me which roots to boil when children fall sick, and which trees are sacred. I also tell my daughters and grandchildren when we go to collect herbs”, (KII in Kiptumute, on 10th March, 2025).

The role of indigenous women in ecological management is not a priority in scholarly publications; nevertheless, as Pfeiffer and Butz (2005) notes, they are the key to the sustainability of numerous ecosystems, as they know a lot about the resources available as plants and they directly participate in conservation activities. Sacred groves and ritual forests are viewed as the learning grounds, where the young members are initiated to the taboos, seasonal calendars and ethical conduct with regards to the ecosystem. The fact that often, these sacred areas are not exploited because of the taboos of communities that do not allow the exploitation of nature in terms of deforestation or hunting also contributes to the preservation of biodiversity. An elder shared:

“There is a hill we don’t touch; even firewood is not collected there. It is for the spirits and for the elders to speak with our ancestors. That is why it is still green when the rest of the forest is bare”, (FGD in Boot, on 5th April, 2025).

Kim *et al.* (2017) studies support the significance of sacred groves in conserving biodiversity, by stating that sacred groves commonly act as a refuge to endangered species that would otherwise be found elsewhere in the forest. There is however a threat to the continuity of these systems. Some younger interviewees were worried that their peers no longer hold the indigenous teachings highly and think that they are old-fashioned and unscientific. A youth leader from Koriomat lamented:

“We hear from elders, but most youths now prefer the internet and modern education. They don’t know the names of trees or animals anymore. We are losing a lot of wisdom”, (KII in Koriomat, on April 2025).

This sentiment is echoed in studies by Hoppers (2002), which point to the generational gap that threatens the survival of traditional ecological knowledge. The introduction of formal education systems, often detached from local knowledge, exacerbates this divide. One local teacher observed:

“The curriculum does not mention our local names or practices. Children learn about Amazon forests but not Tinderet. We need to include our ways in teaching”, (Oral Interview with a School Teacher, at Chebirirbei, on 11th March, 2025).

This lack of integration of indigenous knowledge into formal education systems is a significant barrier to its continued transmission. In addition, migration and modernization have disrupted communal structures. Individuals migrating to urban areas or taking up formal employment often detach from traditional ecological responsibilities. This affects not only knowledge transmission but also the actual conservation of the forest. As one local chief explained:

“Many of our young men are in towns or boda work. They no longer accompany elders to the forest or know when the animals migrate or which trees must not be cut”, (KII with a Local Administrator at Kapsoen, on 5th March, 2025).

Youth migration to urban centers is not just a socioeconomic phenomenon, but it is also a cultural phenomenon as migration leads to the foregoing of forest conservation practices, which were part of the community and their existence. Irrespective of these obstacles, the community-based organizations are witnessing new efforts of capturing



and transforming indigenous knowledge. These consist of cultural day organization, community herbariums and oral histories. A member of a community forest association said:

“We are now trying to record stories from elders. We have even drawn maps showing sacred places so that they are not forgotten when elders die”, (Oral Interview with a Community Forest Association at Serengonik, on 17th April, 2025).

Such efforts are critical toward preservation and renewal of indigenous knowledge and it echoes the results of Kim *et al.* (2017), who supports the idea of engaging local communities in the process of protecting their culture. In short, the main components of preservation and passing of indigenous ecological knowledge in the Northern Tinderet-Nabkoi Forest are oral traditions, sacred sites, and gendered roles in the community. As long as these systems are adopted, they face sustainability challenges because they create generational distance, have no formal acknowledgment, and socio-economic changes. Nevertheless, the local players are doing noble things to record and revitalize the ancient practices to secure continuity. This is informed by the growing awareness concerning the necessity of incorporating indigenous knowledge into the modern conservation activities to enhance ecological resilience (Hoppers, 2002).

4.2 Traditional Ecological Practices and Biodiversity Conservation

Communities surrounding Northern Tinderet-Nabkoi Forest have traditionally depended on the ecological tradition; this has played a major role in conserving biodiversity. Such practices are not only utilitarian but are inherent in cosmological beliefs, social norms and customary law. Unwritten rules that the respondents highlighted controlled such practices to achieve harmony between people and nature. The given point of view aligns with the results of Tayade (2025), who claims that indigenous ecological knowledge is not merely a collection of practices but a worldview providing the means of developing the sustainable relationship between human beings and their environment. The rotational use of forest resources is one of the most underlined practices. The members of the community described how they would not touch some parts of the forest during some of the seasons to enable regeneration of the forest. A forest elder in Ndururo noted:

“In the past, we harvested honey from a section of the forest and left the other to rest. Trees and animals were also left to recover. It was known that if you overuse one place, the spirits get angry”, (KII at Ndururo, on 23rd March, 2025).

This traditional land management system is a form of rotational systems that adopt the dynamic cultivation systems that are evident in other indigenous societies around the world as emphasized by Teague and Kreuter (2020). This strategy would make sure the resources in the forest are not depleted and the land remains productive with time. External policing was not instituted by means of this rotational method but through social sanctions and collective responsibility. Any violator had to undergo the shame of the people or a ritual cleansing. As explained in a focus group:

“If you cut a sacred tree or hunted during the wrong season, the elders would summon you. Sometimes, you had to offer a goat or perform rituals to cleanse your offense”, (FGD at Nabkoi, on 4th March, 2025).

The relevance of social sanctions in ensuring environmental sustainability has been recorded in several studies, such as Mandillah and Ekosse, (2018) who has observed that in most African cultures, the traditional rules are enforced since they are viewed as being ordained by God hence it is broadly followed. Another practice that was noteworthy was the management of fire. Controlled burning was not only used to open up land to be cultivated, but also in the management of undergrowth and the destruction of devastating wild fires. A herder in Kibirirkut explained:

“Every dry season, the old men would light small fires to burn dry grass. This stopped big fires from starting. Now we are told fire is bad, but our way was safer”, (Oral Interview with a Herder, at Kibirirkut, on 4th April 2025).

This practice, though now discouraged by government forestry policies, was reported to have played a crucial role in nutrient cycling, pest control, and maintaining grazing paths for both livestock and wild animals. Respondents lamented that modern regulations have undermined these practices without offering effective alternatives. This perspective aligns with the findings of Harrop (2007), who argue that many indigenous fire management practices were sustainable, providing benefits to both the ecosystem and human communities. Additionally, respondents highlighted the role of agroforestry as a traditional land management system. It was common to find indigenous trees such as *Prunus africana* and *Croton megalocarpus* growing alongside crops, serving as windbreaks, sources of herbal medicine, and shade. A woman farmer from Ngwankoris shared:

“My grandmother planted trees with her maize. We knew which trees improved the soil and which ones scared away birds. Now we are told to cut them and use fertilizers”, (Oral Interview at Ngwankoris, on 4th April 2025).

Such agroforestry techniques indicate a complex ecological awareness of the interdependence of the ecology and played important roles in sustaining the soil fertility and ecological stability within the buffer areas of the forest. This is also supported by research by Mandillah and Ekosse (2018) who pointed out the positive effects of the inclusion of indigenous trees in the farming system including better soil fertility and enhanced biodiversity. The other outstanding

conservation technique was the veneration of totemic species. There are a number of clans that consider certain animals or plants to be sacred and do not harm them. This taboo system helped to save the instilled species. One elder explained: *“Our clan does not eat porcupine. It is our totem. If you kill or eat it, it brings misfortune. Because of that, these animals have survived here even when others disappeared”*, (KII at Kapcheplanget, on 7th March, 2025).

Such conservation by religious and cultural beliefs has been extensively recorded, and researchers such as Tayade (2025) have noted that the taboos are effective in the conservation of the biodiversity since they have been regarded as offering community-based protection to the endangered species. In addition, some species of trees such as *Mukinduri* or *Mutamaiyu* were sacred and could not be destroyed even when in need of some money. The fact that they have managed to survive in a more and more degraded landscape is testimony to the usefulness of such traditional conservation ethics. Sacred trees have also been known to support ecosystems in other areas of Africa, where taboos of sacred forests have been observed to play an important role in the preservation of biodiversity (Harrop, 2007). Despite the evident ecological value of these practices, respondents noted that they are being eroded due to pressures from commercial logging, farming expansion, and externally driven conservation models. One youth leader reflected:

“We are told to adopt modern ways, yet our old ways worked. Now trees are cut by outsiders and sold. Our own rules are ignored because they are not in government books”, (Oral Interview with a Youth Leader, at Kapilat, on 2nd April, 2025).

This issue is supported by a study conducted by Tayade (2025), who refers to the conflict between the traditional conservation efforts and commercial activities intrusion, as a result of which the sacred forest regions are degraded. The implication of the responses that were made across the villages was that there was a strong desire to have the traditional practices to be taken into consideration in formal environmental policies. They stressed on the necessity of government conservationists and local elders in partnerships, which they said leaves interventions in bad shape when indigenous knowledge is not involved. A forest scout elaborated:

“When officers come, they don’t ask us anything. They bring foreign plans and ignore elders. If they listened, they would learn that we know how to care for this forest”, (KII with a Forest Scout, at Cheboror, on 3rd April, 2025).

This view is reflected in the conclusions of Harrop (2007), who claims that marginalization of indigenous knowledge in the formal conservation work results in poor management practices and lack of attachment to local people and the conservation authorities. The people of the community also suggested that cultural conservation areas in which traditional regulations were to be legalized and implemented. According to them, such zones would enable the communities to run forests on the basis of indigenous ethics and also help in national conservation efforts. This recommendation conforms to the suggestions of Harrop (2007) who is in support of the idea of including the indigenous governance systems in the formal conservation systems to make them more sustainable. Overall, the ecological wisdom that is embodied in the traditional ecological practices in the Northern Tinderet-Nabkoi Forest is a deep, situational wisdom of biodiversity and sustainability. Such practices, such as rotational harvesting and fire management, totemic taboos and agroforestry are also ecologically efficient as well as culturally important. Nonetheless, they are marginalized by the existing conservation models. These practices would be beneficial to the contemporary environmental governance, which would improve conservation of biodiversity and preservation of cultural heritage as proposed by Mandillah and Ekosse (2018). The result of such integration is the possibility of a more participative and sustainable way of environmental management that is informed by the contemporary scientific knowledge and the ancient ecological wisdom.

4.3 Belief Systems, Rituals, and Sacred Landscapes in Ecological Stewardship

Ecological stewardship amongst the people of the Northern Tinderet-Nabkoi Forest is centered on belief systems, cultural practices and sacred places. These religious and cosmic aspects affect the way people behave with nature, governing the rules that control the utilization of space and property. These findings are supported by secondary data which stresses the relevance of indigenous systems of knowledge in promoting sustainable use of resources. As noted by researchers such as Ormsby and Ismail (2015), indigenous spiritual beliefs tend to influence environmental ethics to the extent that a feeling of responsibility toward natural resources can be present and is usually lacking in modern conservation practices. The results indicate that these indigenous spirituality constitute an ethical system that makes people focused on the surroundings and take care of them with respect and care, which are the general tendencies of African environmental governance (Oraon, 2021). Among other traditions is the notion of sacred groves, also referred to as kapkorosiek, which is a forest area that is defended against the activities of cutting trees, hunting or gathering firewood. According to an elder of the male based in Kaptebee, sacred groves are said to be the habitats of the ancestral spirits and any human activity is said to bring bad luck. This opinion is also supported by secondary data because religious groves are traditionally recognized as the key to biodiversity conservation in most African societies (Ossai, 2024). The groves serve as habitats to different species of plants and animals which would otherwise be endangered by

human activities. Anderson (2016) assert that these belief-based conservation activities play a key role in ensuring that the ecological integrity is ensured, which ultimately ensures sustainability due to cultural limits on use of resources.

“The kapkorosiek is not just trees—it is where the ancestors live. If you disturb it, people may fall sick or cattle may die. That is why we keep away from it”, (KII at Keben, on 20th March, 2025).

In addition to sacred groves, rituals play a key role in regulating environmental behavior. Respondents mentioned rainmaking rituals and harvest festivals, where environmental harmony is renewed through offerings and prayers. These rituals are aligned with traditional African cosmologies, where humans are seen as part of a larger, interconnected natural world (Osebor, 2024). A community elder from Mogobich recounted:

“Before planting, we would go to the sacred hill and offer grains and milk. The elders would pray for rain. We believed that planting without blessing the land would bring poor harvests”, (Oral Interview at Mogobich, on 24th March, 2025).

These rituals were not simply symbolic but were embedded in practical environmental management strategies. They involved communal participation and helped to reinforce the moral codes that governed sustainable land use. The connection between rituals and ecological ethics is widely recognized in literature, with numerous studies showing how spiritual ceremonies promote environmental stewardship (Ossai, 2024). Ritual leaders, often from specific lineages, were considered custodians of this vital knowledge, emphasizing the serious role they played in sustaining ecological balance. Respondents also emphasized seasonal taboos that restricted activities such as harvesting, grazing, or entering certain parts of the forest. These taboos, based on lunar cycles, animal migrations, or ancestral instructions, ensured that natural resources had adequate time to regenerate, discouraging overexploitation. A woman from Kelbui shared:

“There were times we were told not to fetch firewood from the forest. Our grandmothers said it was a time of rest for the trees. If you disobeyed, something bad could happen to your family”, (FGD at Kelbui, on 10th April, 2025).

These taboos were indispensable to sustainability of local ecosystems, because, in that way, it enabled the natural environment to recover. The secondary data also confirms this opinion, as the research on the topic indicates that indigenous taboos and rituals help to control resource extraction in a number of African communities (Oraon, 2021). Although they are not enforced in the present time, these traditions still have an effect on ecological behavior, especially in older generations. The services of ritual experts are also important to keep the knowledge about the environment in terms of diviners, herbalists, and spiritual guardians. These people who act like a linkage between the spiritual and ecological worlds possess the great ecological wisdom that is transmitted through generations. A diviner from Kiprungu explained:

“The spirits tell me what plant to use, when to harvest, and how to give thanks. If I misuse a tree, they can take away my gift. That is why I must follow the rituals exactly”, (Oral Interview with a Diviner, at Kiprungu, on 22nd April, 2025).

These specialists of rituals are critical towards making recommendation on sustainable activities including when to harvest and where sheep can graze. Secondary data also highlights the paramount importance of the holders of indigenous knowledge to maintain the ecosystem by their spiritual affiliation with nature (Oraon, 2021). Ritual specialists make sure that the communities follow rituals that uphold ecological balance even when such ritual knowledge is expressed in a spiritual manner. Nevertheless, the respondents were worried about the fact that these cultural practices were eroded under the impact of Christianity, formal education and modernization. Most of the practices that were previously used to regulate environmental care are not carried out on a regular basis and holy places have been cleared so that more land could be used to build farms or cut timber. A youth from Sirwo noted:

“We go to church now, and we are told those traditions are evil. But the forest is getting worse. Maybe those old ways helped more than we know”, (FGD with Youth Group in Sirwo, on 13th March, 2025).

Such a loss of customary practices has been seen in some African communities, whereby the use of formal education and new religions has contributed to a loss of the local conservation traditions (Ormsby & Ismail, 2015). The deterioration of the quality of the environmental rituals is a major challenge to the sustainability of the local ecosystem that were previously flourishing in such systems of governance. To address these issues, some of the respondents suggested the restoration and conservation of sacred landscapes. They proposed local government appreciation and community based efforts to preserve these sites. A cleric from Ndakatanaa reflected:

“Not all traditional beliefs are against the Bible. Respecting nature, honoring elders, and protecting the land are things we all believe in. We should find a way to work together”, (KII with a Cleric, at Ndakatanaa, on 18th April, 2025).

This view is in line with an emerging trend of environmental conservation that aims at integrating indigenous knowledge with contemporary practices. The United Nations Environmental Programme (2020) notes that combining traditional ecological knowledge with official conservation systems can help create more inclusive and sustainable forms of environmental governance. Conclusively, belief systems, rituals and sacred landscapes have been effective in ecological conservation in the Northern Tinderet-Nabkoi Forest. Such practices do not only dictate how people live but



they also help to preserve biodiversity by spiritual restrictions and respecting the land. Even though these traditions are now threatened by the process of modernization, they are still deeply rooted in the worldview of the population. Preservation, rehabilitation of these practices as proposed by some respondents would offer some novel solutions on how sustainable environmental governance can be achieved based on cultural identity and spiritual ecology. Many studies support this view and emphasize the role of cultural heritage in environmental management (Anderson, 2016).

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This paper shows that the Northern Tinderet-Nabkoi Forest has indigenous knowledge systems (IKS) that are essential in managing the forests and protecting the biodiversity. Oral traditions, mentorship by the aged and involvement of women in activities are some of the assurances that environmental knowledge is being passed down the generations. Cultural identity and ecological ethics are strengthened with the help of storytelling, initiation rituals, and practical demonstrations, but modernization, formal education, and urban movement are serious challenges to knowledge continuity. Conventionally, communities use rotational exploitation of resources, agro forestry, controlled burning, sacred groves and totemic taboos that keep the soil fertile, preserve species, and control use of forest resources. The practices are good and are becoming sidelined by the commercial activities and the conservation policies, which do not consider the local knowledge. The last finding of the study was that the belief systems, rituals and sacred landscapes were informal mechanisms of regulation in ecological stewardship. The sacred groves, seasonal taboos and rituals are used in shaping sustainable resource management and also strengthening the moral accountability towards nature. Modernization is eroding these practices thus the importance to incorporate culture and spiritual knowledge into formal conservation plans. Overall, the conservation of biodiversity, ecological resilience, and cultural heritage would be improved through the support of indigenous knowledge systems and modern conservation strategies, which would offer a sustainable and culturally-inclusive system of managing forests.

5.2 Recommendation

According to the results, the indigenous knowledge systems within the Northern Tinderet-Nabkoi Forest are suggested to be formally recognized and incorporated into the national and local environmental policies so that the biodiversity conservation and sustainability could be improved. It is necessary to integrate the indigenous ecological knowledge into formal education programs to ensure younger generations learn, appreciate and conserve local environmental practices in addition to modern science. The community-based documentation programs like capturing oral histories, mapping sacred sites, and opening local knowledge centers should be reinforced to protect the knowledge that is in danger of loss because of the generational divide and modernization. Also, the policymakers and conservation authorities should take an active part in liaising with the local elders, women, and ritual experts to formulate inclusive conservation policies and frameworks which observe cultural values and traditional governance practices. Sacred groves and cultural conservation areas should also be given priority protection and legal status because they are also important repositories of biodiversity. In addition, a move towards sustainable conventional activities like agro forestry, rotation of resources as well as controlled burning under controlled systems is a requirement, but not rejection. Last, there should be awareness campaigns that address the disparity between the aboriginal philosophy and those of the modern religions and education systems, thereby understanding each other and upholding the importance of cultural heritage in environmental management.

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Influence of human resource information system–based recruitment and selection practices on organizational outcomes among private sugar manufacturing firms in Western region, Kenya

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ABSTRACT

Kenya's sugar industry, once a cornerstone of the economy, faces a crisis of declining operational performance. This has led many of the sugar firms to embrace a Management Information System (MIS) in operations, by extension, a Human Resource Information System (HRIS). Some of the areas where HRIS has been used include HRIS recruitment and selection practices, employee records management practices, training and development programs, and work scheduling. Despite firms in the sugar industry embracing HRIS, the extent to which this has enhanced organizational outcomes has not been extensively explored. The objective of the study was to investigate the influence of HRIS-enabled training and development programs on organizational outcomes among private sugar manufacturing firms in the Western region, Kenya. The main theory of the study was the technology acceptance theory, and it was supported by human capital theory. The target population was 97 employees comprising top-level management employees, middle-level management employees, and low-level management employees. The study used a census approach. The study's primary data was obtained using structured questionnaires. The research design adopted in this study was a causal research design, which aims at investigating and determining the relationship between causes and effects. The researcher carried out a pilot study at Kibos Sugar Company in Kisumu County to ensure the data collection tool was reliable and valid. Face and content validity for the current research were determined by experts and the researcher's supervisors. Cronbach's alpha coefficient was used to test the reliability of data. Quantitative data analysis was done using inferential and descriptive statistics. SPSS software was used in the analysis. Data presentation was done using tables and models. The study established a significant positive relationship between HRIS-enabled training and organizational outcomes among private sugar firms in Western Kenya. Regression results ($R^2 = 0.239$; $\beta = 0.411$; $p < 0.000$) confirmed that HRIS training substantially predicts improvements in profitability, production efficiency, brand positioning, and market share. The study concludes that effective implementation quality, managerial support, and employee engagement are critical determinants of HRIS success. Firms should enhance the use of HRIS data analytics to accurately identify skill gaps, align training programs with operational needs, and ensure that training investments directly contribute to improved organizational performance.

Keywords: Human Resource Information System, Organizational Outcomes, Private Sugar Manufacturing Firms, Training and Development Programs, Western Kenya

I. INTRODUCTION

Organizations in the modern competitive business environment face a plethora of challenges, which arise because of diverse sources, such as organizational performance shortcomings and the growing competition due to digital transformation and globalization (Yeung & Brockbank, 2015; Kassim et al., 2012). To address these issues, HR managers are forced to develop strategic frameworks based on the changing market conditions (Masyhuri et al., 2024; Shavaran et al., 2025). This is a strategic necessity that is being triggered by the increased use of technology and usage in search of better organizational results. In addition, economic theories admit and nominate the significant impact of technology in propelling the economic success of a country (Hossain et al., 2021). Nonetheless, the role of technology in the human resource management result has been discussed by a considerable amount of scholars across the globe, and the majority of them have emphasized the necessity of the human resource information system in the workplace (Evangelista & Vezzani, 2010).

Information technology innovation has greatly influenced the growth of Human Resource Information Systems (HRIS) because of the evolution of Management Information Systems (MIS) (Noutsa et al., 2017; Noe et al., 2012).

HRIS is central to the management of human capital especially in the knowledge based economies due to the disruptive influence of information communication technology (ICT) (Anitha & Aruna, 2013; Oyagi & Mjomba, 2021). As an HR system, HRIS is placed in the sphere of MIS, including different functions of HR to present complete information about human resource needed to ensure business excellence. HRIS is a complex computer application, which harbours various features, such as database administration, information sharing, and usage, all of which are expected to streamline human resource management operations (Johnson et al., 2020).

In the Sri Lanka, Wickramasinghe (2022) conducted a study investigate the characteristics of human resource information systems (HRIS) that influence the success of the same. Findings led to identify the important characteristics of HRIS that influence its success in medium-sized firms in a developing country, Sri Lanka. According to a report released by German Rectors Conference, 85 percent of the manufacturing companies in Germany exploit HRIS in administrative activities such as payroll and leaves, which allows the HR to focus on other strategic activities. Use of HRIS is on a rise in Africa where economies are realizing the potential of automation of the HR and data-driven decision making despite its low adoption compared to other emerging economies. Olaniran and Williams (2020) demonstrated that the implementation of HRIS in the South African public healthcare institutions resulted in the enhancement of the personnel records, staff scheduling, and payroll processing. In Nigeria, Tertiary Education Trust Fund (TETFund) is also offering grants to universities to implement HRIS. Abdullah and Abubakar (2017) outlined several benefits related to HRIS use at Nigerian institutions, including the decrease in administrative loads, improvement of the record keeping process, and the increased opportunities of staff development.

The manufacturing industry in Kenya is on a growth spurt and thus it requires an effective management of an expanding workforce. HRIS can be considered as game-changer, as it can bring tremendous benefits to manufacturing companies. Njihia and Mwirigi (2014) noted that enterprise Resource Planning (ERP) systems have transformed the way organizations go about the process of providing Information systems. This research discusses the issues of introducing ERPs into small and medium enterprises with the aim of finding the best ways to manage the change process to get a competitive advantage over its rivals. According to the study there was an increasing tendency of HRIS implementation in Kenyan manufacturing, and the major enterprises tend to be on the forefront. Mumias Sugar Company introduced an Enterprise Resource planning (ERP) system, MyOB Premier, in an attempt to streamline its operational processes as well as modernize its management processes (Njihia & Mwirigi, 2014). The ERPs generally come with human resource management modules and as such, they have used this to support HR operations. The Nzoia Sugar Company has adopted employee portals in order to administer its human resource using HR Information Systems. This will enable employees to have different functions of HR, which include timesheets, leave requests, and benefits in one centralized portal. On the same note, other sugar firms in Kenya such as Kibos Sugar Company, Sony Sugar, Kwale Sugar, Busia Sugar Industries and Olepito Sugar Company have been using HRIS to simplify its HR services and improve the management of its employees (Thite, 2020).

According to industry reports, HRIS has the potential to increase the productivity of manufacturing industries (10-15 percent) because of the simplified work process, effective training, and communication (Huda, 2023; Okoronkwo, 2021). Nevertheless, it would be necessary to conduct an additional study on the industry to estimate this effect on Kenyan sugar factories. It is also reported in the industry that this technology can result in a reduction of 5-10% in the manufacturing industry because of streamlined operations, effective training, and workforce management (Ololade et al., 2023; Pandey & Singh, 2023). Again, there is no easy access to certain data on Kenyan sugar manufacturing.

Training and development have a more direct impact on organizational outcomes compared to other HR functions (recruitment, payroll, or performance appraisal) (Maruyama & Braga, 2014). Although staffing and payroll handle the staffing and compensation parts, the HRIS-enabled training plays an active role in increasing the skills, productivity and flexibility of employees, bringing about efficiency, innovativeness and competitiveness. In manufacturing industries, where traditional training methods are normally ineffective, inflexible, and costly, the study of HRIS-enabled training and development is vital. Conventional techniques are very dependent on face-to-face meetings, standardized training material, and manual training and assessment systems, which may lead to skill deficiencies, lack of employee interest, and poor performance results (Yeung & Brockbank, 2015). By contrast, HRIS brings together technology to plan and deliver as well as assess training programs effectively, provide personalized learning, flexible access, and real-time performance monitoring (Johnson et al., 2020). In the case of Kenyan sugar manufacturing companies, HRIS can be used to increase the productivity of the workforce, optimize operational efficiency, lower the cost of training, and increase the competitiveness, curbing the outdated practices, high labor costs, and changing industry needs (Huda, 2023).

1.1 Statement of the Problem

Kenya's sugar industry once a cornerstone of the economy, faces a crisis of declining operational performance according to Kenya Sugar Board. Domestic sugar production struggles to meet national demand with public sugar firms like Mumias, Nzoia and Sony facing a challenge of being closed down. Private sugar mills are surviving but still cannot meet national sugar requirements leading to sugar being imported to meet Kenya sugar needs. Furthermore, the costs associated with production of sugar are high hence need ICT intervention. Existing research on the influence of HRIS on organizational outcomes spans various sectors but lacks a specific focus on the sugar manufacturing Industry in Kenya. Studies such as Chatwick (2023), Manyura and Makokha (2023), explore HRIS in different Industries, yet empirical evidence in private sugar firms in Western Region, Kenya remains sparse. Additionally, conflicting findings on HRIS enabled practices highlight gaps in concept, methodology and contextual relevance (Arifin & Lo, 2020; Raharjo & Fernandes, 2018; Owor, 2016). Previous studies have highlighted several challenges faced by sugar manufacturing firms and highlighted effective utilization of HRIS as a possible solution to address these challenges. It is crucial for policy makers, regulators, and practitioners who are interested in improving the competitiveness of the sugar industry in the area to have a solid understanding of the effect that HRIS has on parameters such as market share, productivity, and profitability. In light of this, the purpose of this research is to evaluate the influence that Human Resource Information Systems have on the outcomes of organisations that are private sugar production companies located in the Western area of Kenya.

1.2 Research Objective

To examine the influence of HRIS recruitment and selection practices on organizational outcomes among private sugar manufacturing firms in Western region, Kenya.

II. LITERATURE REVIEW

2.1 Theoretical Review

Technology Acceptance Model (TAM) has been considered as one of the most significant theories of information systems study, and it tries to understand and predict the level of acceptance and adoption of new technology by people. Fred Davis proposed TAM in 1989, and it has been developed by other researchers since that time to explain how individuals behave under various circumstances. Essentially, TAM has the premise that the intention to use a technology is dependent on perceived usefulness (PU) and perceived ease of use (PEOU) of a technology. In terms of the training and development programs that have been undertaken using the HRIS in the sugar manufacturing companies, TAM suggests that the adoption and usage of the HRIS by the educators is a crucial factor in assessing its effects on the organizational performance. Moreover, it is probable that companies that have good strategies to address user issues, user-friendly interface, training, and assistance on how to use the HRIS can reap favorable outcomes, such as improved competencies among employees, employee motivation, and overall organisational performance (Alshammari & Rosli, 2020).

One of the most important theories in economics as well as organizational theory is the human capital theory, which explains the significance of human resources as one of the critical elements of economic productivity and performance in an organization (Carlbäck et al., 2024). The proponents of the human capital theory include economists such as Gary S. Becker (1975) who is largely regarded as the father of the human capital theory. Human capital as the cause of economic growth and development are the works of the founder of the study and the ground work was made by Becker in his master piece work, the title of which is Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education (1964). The followers of the human capital approach are sure that the secret of the rise in the individual productivity and the economy growth is investment in education, training, and the development of skills (Yusuf & Yulianeu, 2022). In this theory, the more productive and the better the performance of an organization are, the more the investment in the human capital (education, training, skills) of the employees (Kang & Mok, 2022). HRIS can become a resourceful tool in training and development management of the employees. The administrators can direct the training programs through the performance data or self-assessment within the HRIS by understanding the areas of weaknesses or areas which require improvement of skills.

2.2 Empirical Review

Ali and Rahman (2021) sought to identify the applications of human resource information systems (HRIS) in various businesses, as well as their outcomes. They note that the role of Human resource management (HRM) has shifted overall from traditional (popularly called personnel management) to a strategic one. HRIS outline the amalgamation between HRM and IS. HRIS is one of the best neoteric HR tools in modern organizations. It became popular in developed countries since the beginning of this century. However, only few corporate organizations and MNCs in developing countries like Bangladesh have started to adopt and use HRIS since this decade. But still its adoption and

usages are limited to few mid to large sized organizations. This research is primarily concerned with identifying the applications of human resource information systems (HRIS) in various businesses, as well as their outcomes. Kiruja (2021) sought to investigate the influence of HRIS practices and performance of Oil and gas Companies in Kenya. By use of descriptive research design, the study found out that human resource information systems affect training and development and the firm performance of the oil and gas companies to a high extent. Smith et al., examined the effect of HRIS practices on organizational performance in manufacturing firms in the United States. By use of regression analysis and structural equation modeling, the findings suggested a positive relationship between effective training and development programs administered via HRIS and organizational performance such as productivity and employee satisfaction. Su and Wright (2012) investigated the effects of HRIS on performance in IT companies in China. Using qualitative data were gathered through interviews with HR managers and executives, the findings indicated a positive effect of effective training and development programs through HRIS on organizational performance such as operational efficiency and product quality. Abuhantash and Brint (2023) compared the effect of HRIS on employee performance between public and private schools in Spain. Utilizing a comparative research design, the findings revealed differences in the effect of HRIS-enabled employee training programs between public and private schools, with private schools showing stronger associations with employee performance.

The reviewed studies consistently show that HRIS-enabled training and development affect organizational outcomes, though with notable contextual and methodological differences. Ali and Rahman (2021)) found that e-training improved customer responsiveness and professionalism at the Tanzania Revenue Authority, but its public-sector setting and case study design limit applicability to private sugar firms. Kiruja (2021) also reported strong HRIS effects in Kenya's oil and gas sector, though unclear sampling reduces reliability. Chatwick (2023) used rigorous statistical models in U.S. manufacturing firms, confirming positive HRIS–performance links, while Su and Wright (2012) provided qualitative evidence from Chinese IT firms, lacking causal inference. Abuhantash and Brint (2023) showed sectoral differences in Spain but used a non-explanatory design. These gaps justify testing HRIS training effects in Kenyan sugar firms. Therefore, this research hypothesise:

H_{01} : HRIS Training and development program has no statistically significant influence on organizational outcomes among private sugar manufacturing firms in Western region, Kenya.

III. METHODOLOGY

3.1 Research Design

The research design adopted in this study was a causal research design, which aims at investigating and determining the relationship between causes and effects. In this method, the research attempted to find out how far independent variables affect the dependent variable thus indicating the cause-and-effect relationship. According to Baskerville and Pries-Heje (2014), an experimental variable may result in the emergence of quantifiable outcomes, which may be in the form of concepts, symbols, or substances. Creswell and Creswell (2017) also stress that causal research is especially effective in investigating to what extent alteration in one variable correlates with the corresponding alteration in another one.

3.2 Study Area

The study was conducted in Western region focusing on private sugar companies. Sugar production plays a vital role in Western Kenya, specifically in the Counties of Kakamega, Bungoma and Busia. The private sugar companies operating in these areas include Naitiri Sugar Company in Bungoma County, West Kenya Sugar Company and Butali Sugar Mills in Kakamega County and Busia Sugar Company Limited and Olepito Sugar co. Ltd in Busia County. Three of the five private sugar firms in Western Region of Kenya was studied. Olepito and Naitiri are branches of West Kenya sugar company hence Naitiri was studied to represent the rest of the West Kenya sugar firms as they work under the same demographic factors.

3.3 Target Population

The target population consisted of 97 individuals who were managers of private sugar production enterprises in the western area of Kenya. This population was comprised of target top level management employees, target middle level employees, and target low-level management employees. The highest level of management, which includes the chief executive officer, managing directors, and managing directors. Middle level management comprised of head of departments while low level management comprised of supervisors including shift supervisors, lead operators and team leaders.

3.4 Sampling Technique and Sample Size

Given the relatively small size of the population, consisting of few individuals (specifically, 97), the census approach was used to include all the respondents. As highlighted by Kothari (2007), employing a census method ensures that every member of the population is included in the study, thus minimizing the potential for sampling errors or inaccuracies in drawing conclusions about the population as a whole.

3.5 Data Collection

The data that was obtained for the research was considered primary data. The main data necessary for the investigation was collected via the use of structured questionnaires. A five-point Likert scale was used to organise them, with the following options: 1-strongly disagree, 2-disagree, 3-undecided, 4-agree, and 5-strongly agree. Prior to beginning the main study project, a number of issues were addressed via the pilot test. The pre-testing sample was comprised of eight individuals who were selected from the Kibos Sugar Company Limited in Kisumu County. This number represents ten percent of the total sample amount. It is recommended by Singpurwalla (2013) that the sample size for a pilot study be equal to ten percent of the total sample size for the research. Neither the findings of the pilot test nor the results of the major investigation were used. Experts and the supervisors of the researcher were responsible for determining the face and content validity of the present study conducted (Fraenkel & Wallen, 1990). For the purpose of determining the reliability of the data, the Cronbach's alpha coefficient was used. HRIS training and development programs ($\alpha=0.953$) and Organizational outcomes ($\alpha=0.846$). According to Singpurwalla (2013), a Cronbach alpha value of 0.7 or more is considered to be acceptable.

3.6 Data Analysis

The data was examined to provide information using quantitative techniques inside the context of SPSS 26. Editing, cleaning, and coding the original data was done before the analysis started. Version 26 of SPSS was subsequently used. According to Kemp et al. (2018), the variables under study were characterised by a descriptive statistical analysis that revealed their distribution, core trends, and variability. The study used inferential statistics to determine the nature of the linkages between the variables, and correlation analysis to probe the interrelationships between the independent and dependent variables. In order to determine the direct influence, the independent variable has on the dependent variable, a simple linear regression analysis was used. Simple linear regression equation was written as;

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Where; Y was Organizational outcomes

β_0 is constant (intercept),

β_1 was coefficient parameter to be determined,

X_1 was Training and development programs,

ε was error/disturbance

3.7 Ethical Considerations

In line with Kothari (2007), the research put significant ethical considerations first such as anonymity and confidentiality. The participants were given an assurance that their confidentiality would be maintained and that the information that they provided would be in no way disclosed. No individual details were obtained and the purpose of study was well presented to the respondents to make them participate in the research. Moreover, the researcher complied with the principles of ethical writing in academic literature, plagiarism checkers helped her not to misrepresent the information, and cited material was differentiated with personal interpretation. In general, ethical research practices were highly adhered to through the voluntary and informed consent to participate.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 HRIS recruitment and selection practices

The study sought to establish information regarding HRIS training and development programs. The sampled respondents were provided with 5 statements related to HRIS training and development programs. The relevant results are as shown in Table 1.

Table 1*HRIS Training and Development Programs*

No	HRIS training and development programs	5	4	3	2	1	Mean	SD
1	My organization uses HRIS software in planning for training and development programs.	10 (12.7%)	34 (43%)	22 (27.8%)	11 (13.9%)	2 (2.5%)	3.49	0.972
2	My firm uses HRIS to identify the employee training needs.	15 (19%)	31 (39.2%)	22 (27.8%)	9 (11.4%)	2 (2.5%)	3.61	1.005
3	HRIS in my firm allows employees to access training at their convenience. .	18 (22.8%)	30 (38%)	20 (25.3%)	9 (11.4%)	2 (2.5%)	3.67	1.034
4	My firm uses HRIS to identify the learning path hence train content based on individual skill gap.	25 (31.6%)	28 (35.4%)	18 (22.8%)	6 (7.6%)	2 (2.5%)	3.86	1.034
5	My firm uses HRIS to evaluate the training offered to staff.	21 (26.6%)	34 (43%)	15 (19%)	7 (8.9%)	2 (2.5%)	3.82	1.010
	Overall Mean Score						3.69	

A notable proportion (12.7%) strongly agreed and (43%) agreed that their organization uses HRIS software in planning for training and development programs. Some respondents were unsure about its role in planning, while a few disagreed, suggesting possible limitations in its application. A significant share (19%) strongly agreed and (39.2%) agreed that their firm uses HRIS to identify employee training needs. Some respondents were uncertain about its effectiveness in training needs assessment, whereas a smaller fraction disagreed, indicating reliance on alternative methods. A substantial portion (22.8%) strongly agreed and (38%) agreed that HRIS in their firm allows employees to access training at their convenience. Some respondents were unsure about the level of accessibility provided, while a few disagreed, implying possible challenges in remote access. A considerable number (31.6%) strongly agreed and (35.4%) agreed that their firm uses HRIS to identify the learning path and train content based on individual skill gaps. Some respondents were uncertain about how well HRIS aligns training with skills gaps, while a small number disagreed, suggesting potential inefficiencies in training personalization. A notable share (26.6%) strongly agreed and (43%) agreed that their firm uses HRIS to evaluate the training offered to staff. Some respondents were unsure about its effectiveness in training evaluation, whereas a few disagreed, indicating skepticism about its assessment capabilities.

In general, it was established that private sugar firms utilized HRIS training and development practices as shown by the overall strong mean of 3.69. The system is seen as valuable in identifying training needs, personalizing learning paths, offering flexible access, and evaluating training effectiveness. Chatwick (2023) found a positive relationship between HRIS-enabled training programs and organizational performance, including productivity and employee satisfaction. Similarly, Kiruja (2021) demonstrated that HRIS practices positively impact training and development in the oil and gas sector. However, as seen in the study's standard deviations (0.972 to 1.034), individual experiences with HRIS vary, highlighting the importance of tailored implementation, as emphasized by Su and Wright (2012) and Abuhantash and Brint (2023).

From open ended statement, private sugar manufacturing firms in Western Kenya implement various HRIS-enabled training and development programs, including e-learning platforms, virtual training modules, performance tracking systems, and competency-based learning plans. These programs help employees acquire new skills, enhance job performance, and stay updated with industry advancements. Online training modules offer flexibility, reducing disruptions to operations while ensuring continuous learning. HRIS-based learning management systems track employee progress and identify skill gaps, allowing HR to tailor training programs effectively. These initiatives improve overall productivity, employee engagement, and job satisfaction, leading to lower turnover rates. Additionally, well-trained employees contribute to operational efficiency and innovation, positively impacting the firm's competitiveness.

Private sugar manufacturing firms in Western Kenya utilize various metrics to assess the effectiveness of HRIS training and development programs. Employee performance evaluations are a primary measure, tracking improvements in skills, productivity, and job efficiency after training sessions. Training completion rates and knowledge retention scores help determine how well employees absorb and apply the material. Employee feedback surveys provide insights into the relevance and quality of training, helping HR refine programs for better engagement. Additionally, firms analyze operational outcomes such as reduced error rates, faster task completion, and improved problem-solving capabilities. Career progression trends, including promotions and internal mobility, indicate long-term training success.

4.1.2 Organizational Outcomes among Private Sugar Manufacturing Firms in Western Region, Kenya

The purpose of this section was to identify the organizational results of privately owned sugar-producing companies. The respondents were subjected to five statements about the organizational outcomes of the privately owned sugar producing business in the Western part of Kenya. The findings are summarised in Table 2.

Table 2*Organizational Outcomes among Private Sugar Manufacturing Firms in Western Region, Kenya*

No	Organizational outcomes	5	4	3	2	1	Mean	S.D
1	My organization market share has expanded over the last one year.	9 (11.4%)	29 (36.7%)	27 (34.2%)	12 (15.2%)	2 (2.5%)	3.39	0.966
2	My firm's sugar production has increased over the last one year.	9 (11.4%)	38 (48.1%)	20 (25.3%)	10 (12.7%)	2 (2.5%)	3.53	0.945
3	My firm's profitability has increased over the last one year.	28 (35.4%)	41 (51.9%)	8 (10.1%)	(0%)	2 (2.5%)	4.18	0.813
4	My brand image has been enhanced over the last one year.	36 (45.6%)	28 (35.4%)	11 (13.9%)	2 (2.5%)	2 (2.5%)	4.19	0.948
5	The use of HRIS in my firm has increased efficiency in the production process through cost cutting and better pricing.	34 (43%)	28 (35.4%)	6 (7.6%)	4 (5.1%)	7 (8.9%)	3.99	1.235
	Overall Score						3.86	

The research determined that the adoption of HRIS by private sugar manufacturing companies in Western Kenya has produced positive organizational results as indicated by a robust overall mean score of 3.86. In particular, the profitability, brand image, production efficiency, and market share were improved. These results can be compared to Ali and Rahman (2021), who noted that HRIS is a transition to a strategic HRM with the help of which organizations are able to enhance professionalism and responsiveness with the use of e-training. In a similar fashion, the good results reported in this study indicate that use of HRIS improves operational and strategic capabilities, even when on a developing country setting.

The results are also supported by Kiruja (2021), who discovered that HRIS practices have a significant impact on training and development and, subsequently, firm performance in the Kenyan oil and gas industry. The fact that in the current research the majority of the respondents (87.3, 81, and 78.4) say that profitability, brand image, and production efficiency have improved leads to the conclusion that HRIS-enables training is a factor in the increased employee capabilities and the overall performance of the firm. This evidences the fact that HRIS is not an administrative tool only but also a moving force.

Moreover, the findings are consistent with Smith et al. (2020) the quantitative analysis of whose research revealed a positive correlation between the training programs supported by HRIS and such performance measures of the organization as the productivity and employee satisfaction. These findings reflect the observed rise in the sugar production and efficiency in the current study, which suggests that the structured training based on HRIS improves the workforce productivity and operational performance.

Similarly, the researchers achieved the same results as Su and Wright (2012) who stated that training with HRIS increases operational efficiency and product quality within IT companies. Within the sugar manufacturing process, the efficiency of production and cost control (mean = 3.99) implies that HRIS has input in the optimality of resource utilization and efficiency of the processes, as was the case with the efficiency of the Chinese IT industry.

The standard deviation of the responses (0.813 to 1.235) however, suggests that HRIS is not equally applicable in all companies. This confirms the results of Abuhantash and Brint (2023), who reported the variation in the effectiveness of HRIS depending on the sphere, with a higher score in the case of private institutions. At the same time, in this research, a few respondents indicated that they were unsure or disagreed with the market share and production increase, indicating that firm size, degree of the HRIS application and managerial capacity could moderate the effectiveness of the HRIS.

In addition, although the findings are mostly consistent with the prior research, they also fill some of the gaps that have been identified in the literature. As an example, unlike other research works like Su and Wright (2012) that applied a qualitative approach and Abuhantash and Brint (2023) that applied non-explanatory designs, the current research offers empirical context-specific evidence in the Kenyan sugar industry. This enhances the external validity of HRIS performance associations in the emerging economies and industry-related settings.

The results in general are a solid empirical evidence that null hypothesis (H01) that HRIS training and development programs do not statistically significantly affect organizational outcomes is rejected. Rather, the evidence shows that HRIS-facilitated training and development are highly effective in improving the organizational performance, especially in profitability, efficiency, and brand image. This not only proves that HRIS serves as a critical strategic tool in enhancing performance in the private manufacturing firms, but also points to the fact that the implementation of the tool has to be subjected to contextual differences.

4.2 Inferential Statistics

Regression analysis was conducted to find the proportion in the organizational outcomes which can be predicted from the HRIS training and development programs. Table 3 shows the analysis results.

Table 3

Regression Results of HRIS Training and Development Programs and Organizational Outcomes

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.489 ^a	.239	.229	.68456		
a. Predictors: (Constant), HRIS training and development programs						
ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.351	1	11.351	24.222	.000 ^b
	Residual	36.084	77	.469		
	Total	47.435	78			
a. Dependent Variable: Organizational outcomes						
b. Predictors: (Constant), HRIS training and development programs						
Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	2.338	.318		7.353	.000
	HRIS training and development programs	.411	.084	.489	4.922	.000
a. Dependent Variable: Organizational outcomes						

The HRIS Training and development Programs had a moderate positive relationship ($r = 0.489$, $p = 0.000$) with organizational outcomes. This shows that companies that focus on developing their employees using HRIS record improved performance in the company. Personalized learning plans, skill development tracking and identification of training gaps facilitated by HRIS training programs enhance the capabilities and job satisfaction of employees. In sugar manufacturing, where technical skills are paramount, specific training that involves HRIS guarantees that the employees are able to retain their competence in the dynamic operations and technologies. This does not only increase productivity but also enhances employee retention since the workers feel much appreciated and supported in their work. The investigation of Chatwick (2023) revealed that training programs driven by HRIS positively affect organizational performance, and employees showed productivity and improved satisfaction in manufacturing organizations in the U.S, which enhanced efficiency of operations and employee skills. Kim and Lee (2022) also discovered the same effect on employee performance, where HRIS positively impacted employee performance, especially through training in manufacturing companies in South Korea, which led to increased efficiency of operations and employee skills.

Based on the table 3 above, the value of R square or coefficient of determination was 0.239 indicating that HRIS training and development programs explain 23.9 percent of variance on the outcome of the organization in the case of the private sugar manufacturing firms in the Western region, Kenya. Based on ANOVA table significance of the model $F(1,78) = 24.222$, $P < 0.05$ indicates that it is significant at 95% confidence level hence the model is viable. This means that the HRIS training and development programs is a predictable indicator of organizational performances in the private sugar manufacturing companies in the Western region, Kenya. The simple linear regression equation is as indicated below.

$$Y = 2.338 + 0.411 \text{ HRIS training and development programs.}$$

The regression coefficient value of 0.411 of HRIS training and development programs is not standardized, which means that it has a strong positive influence on the organizational outcomes in the case of the privately owned sugar manufacturing companies in Western Kenya. It implies that the unit change in the HRIS training practices leads to 0.411-unit change in the organizational outcomes, indicating that the improved training programs based on HRIS can significantly help improve the organizational performance. The implication of this finding is that an organization can utilize HRIS in enhancing its training and development programs and in the process this can result in major changes in the main business results like productivity, employee satisfaction and profitability.

The result refutes the null hypothesis (H01) that states that there is no significant impact of HRIS training on organizational outcomes. The findings indicate that training and development programs based on HRIS are important in improving the organizational performance, which is adequate with the research by Kiruja (2021). The two studies concluded that HRIS has a positive effect on training and the organizational performance in terms of productivity and employee satisfaction. Also, Saks et al. (2010) noted that training based on the HRIS within IT companies positively

influences the efficiency of operations and the quality of products, which is why the use of HRIS in improving the organizational performance in other industries can be seen as more general.

Recent research has not substantiated the hypothesis that the HRIS training and development programs always result in drastic organizational improvements. According to Abuhantash and Brint (2023), the impact of HRIS training programs might depend on sectors, and in the case of private schools, the programs are more strongly associated with the performance of the employees. This implies that sector specific issues might affect the degree of HRIS training to organisational success, with the result that specific HRIS strategies are required within specific industries. According to Fischer (2011), such issues as absence of managerial support and unsustainable departmental climate can hinder the effectiveness of training, and this could affect the effectiveness of HRIS-implemented training programs in a negative way. On the same note, Peiró and Tetrick (2011) proposes that the nature of training, the content and experience of the trainees also count a lot hence it is not necessarily the case that the HRIS systems are the sole guarantee of training success without the presence of the right conditions. Also, Saks et al., (2010) maintain that employee motivation is vital in determining the effectiveness of the training programs. The HRIS systems may not produce the intended effect on the organizational results or result unless there is motivation of employees or a feeling that the training is of value to them. This implies the necessity of having HRIS programs that are highly aligned to the needs of the employees and organizational objectives so that they are not only available but also active and useful.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The research concludes that the impact of training and development programs on the organizational outcomes of the private sugar manufacturing companies in Western Kenya are significant and positive with the influence of HRIS. Companies that efficiently apply HRIS in finding training requirements, customizing learning, giving flexible access, and measuring training accomplishments are better in performance in terms of profitability, production effectiveness, increase of market share, and brand name. The great regression findings prove that HRIS-based training is a powerful predictor of the success of organizations. Nevertheless, the discrepancy in HRIS effectiveness between the firms appears to indicate that the quality of implementation, involvement of employees and support of managers is still the key to the maximum benefit of HRIS training systems.

5.2 Recommendations

The study hence, recommends that manufacturing companies should not stop investing in HRIS training and development programs in order to get the most out of it in terms of organizational output. In particular, companies must have a focus on skill gap identification, tailoring training material and training effectiveness with the use of HRIS. The HR staffs are also expected to get regular training on how to use HRIS to its maximum benefit, which will eventually result in a more competent and efficient work force.

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Leveraging artificial intelligence for customer personalization: Insights from banks located in Mwanza City, Tanzania

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ABSTRACT

The purpose of the study is to explore the relationship between artificial intelligence (AI) adoption by banks and customer personalization, specifically for banks located in Mwanza City, Tanzania. The Technological Acceptance Model (TAM) served as the theoretical foundation. The customer personalization constructs include customer loyalty, customer retention, customer advocacy, and customer engagement. A quantitative method was used through a cross-sectional survey design targeting 100 banking officials, including marketing managers, customer service officers, IT officers/systems analysts, digital banking officers, and branch managers. Structured questionnaires were used to collect the primary data, and the hypotheses were tested using Structural Equation Modelling (SEM). The results reveal that AI adoption has a positive and statistically significant effect on customer engagement, retention, loyalty, and advocacy, with p-values less than 5% for all the customer personalization constructs used in this study, supporting TAM's applicability in understanding AI adoption among the selected banks in Mwanza, Tanzania. The study recommends that banks should enhance their AI-driven personalization by integrating thorough staff upskilling with comprehensive automation and advanced predictive analytics, all governed by robust data management practices. Furthermore, regulators need to establish innovation-friendly frameworks that are proportionate to the associated risks of AI usage, enabling the secure deployment of AI to improve customer engagement, retention, loyalty, and advocacy. This approach will help banks to maintain competitiveness in the rapidly evolving digital landscape.

Keywords: AI Adoption, Banks, Customer Personalization, Mwanza, Tanzania

I. INTRODUCTION

Artificial Intelligence (AI) is revolutionizing customer personalization across continents, with each region showcasing unique applications. In North America, companies like Starbucks and Dine Brands are at the forefront of integrating AI into their operations. Starbucks employs its AI system, Deep Brew, to analyze customer data and offer personalized recommendations, enhancing customer experience and operational efficiency (Zatsu et al., 2024). Similarly, Dine Brands, the parent company of Applebee's and IHOP, utilizes Amazon's Q AI assistant to provide personalized food suggestions and streamline restaurant operations (Rady et al., 2020). In Europe, Germany's WeFox leverages AI to analyze customer data and offer tailored health and property insurance policies. Additionally, a European telecom company has integrated generative AI into its marketing strategy, enhancing customer engagement through personalized content (Bano et al., 2025).

Asia's rapid technological advancements have positioned AI as a cornerstone in customer personalization. Southeast Asian marketers are increasingly adopting AI to personalize customer experiences, optimize ad targeting, and improve campaign performance. This trend underscores the region's proactive approach to integrating AI into marketing strategies, aiming to meet the evolving expectations of tech-savvy consumers (Addien et al., 2024). The adoption of AI in customer personalization is rapidly expanding in Australia, especially in the retail and hospitality industries. It is estimated that 5% of Australian businesses are leveraging AI in personalized marketing efforts (Ruel & Njoku, 2021). The AI adoption story is also significant to Tanzania as the country is taking important steps towards integrating AI into its national strategy. Recently, Tanzania has conducted its first AU Readiness Assessment, laying the foundation for a national AI strategy that emphasizes ethics, inclusion, and sustainable development (United Nations Environmental, Scientific and Cultural Organization (Plantinga et al., 2024). These initiatives justify the commitment of the Tanzanian government to harnessing the benefits tied to AI adoption.

Tanzania's banking sector has initiated steps toward AI integration, particularly in enhancing customer personalization. Financial institutions are employing AI-driven tools such as chatbots and robot-advisors to provide personalized financial advice, credit scoring, and fraud detection, thereby improving customer satisfaction and

operational efficiency (Organization for Economic Co-operation and Development [OECD], 2021). Additionally, the government has recognized the potential of AI, encouraging financial institutions to embrace AI to cut costs, boost inclusion, and enhance customer experience (Ally, 2025). Despite these advancements, several challenges hinder the full-scale adoption of AI in Tanzania's banking sector. A significant barrier is the limited digital literacy among a substantial portion of the population, which affects the effective utilization of AI-powered services (Kim, 2025). Furthermore, the absence of a comprehensive national AI policy framework leads to fragmented AI initiatives across various sectors, including banking (Folorunso et al., 2024). This lack of cohesive strategy results in inconsistent AI adoption and underutilization of its potential benefits. Additionally, existing legal instruments in Tanzania are inadequate in addressing the specific legal challenges posed by AI and FinTech, necessitating the development of targeted regulatory frameworks (Ally, 2025).

This study is important as it provides insights into how AI adoption can enhance customer personalization, fostering customer loyalty, engagement, retention, and advocacy (Ahmed et al., 2025). It guides Tanzanian banks in designing effective AI strategies to improve engagement and service efficiency (OECD, 2021). Additionally, it informs policymakers on AI regulations and frameworks that support ethical, inclusive, and sustainable digital banking (OECD, 2021). Furthermore, the specific objectives of this study are fourfold. First, to examine the role of AI adoption in enhancing customer engagement. Second, to examine the effect of AI adoption on customer retention. Third, to assess the influence of AI adoption on customer loyalty. Four, to evaluate the impact of AI adoption on customer advocacy.

AI has become a key driver of customer engagement in the banking sector, enabling interactive personalized experiences that traditional approaches cannot achieve. Tools such as chatbots, predictive analytics, and virtual assistants allow banks to predict customers' needs, recommend better product options based on their needs, and provide timely support. In Australia, a national bank AI tool (Customer Brain) is used to analyze customers' behavior and spending patterns to actively engage customers, leading to a 40% increase in engagement levels (Metha, 2025). In addition, a previous study revealed that personalization and value-in-use provided by chatbots significantly increase the user continuance intention through enhanced engagement (Li et al., 2023). Furthermore, AI plays a vital role in improving customer retention. Predictive analytics, machine learning, and natural language processing allow banks to analyze smartly all the transactional data, engagement patterns, and behavioral signals to forecast potential risks. It is argued that AI-powered predictive analytics reduces customer churn by up to 30% by sending retention messages and tailored offers to high-risk clients (Biswas et al., 2020). Also, it is argued that AI improves customers' retention through predictive analytics and timely interventions (Yoo et al., 2024).

Customer loyalty is strengthened through AI-driven personalization by linking the bank services offered with individual preferences and financial goals. For instance, banks use AI-driven personalization to study and analyze customers' spending patterns, transaction history, and engagement patterns to deliver tailor-made recommendations and advice. Additionally, AI integration in wealth management and banking services has led to a 6% rise in revenue over the past three years by increasing customer satisfaction and loyalty (Baladari, 2024). A recent study conducted in India revealed that personalization significantly predicts customer loyalty when mediated by customer satisfaction and perceived usefulness (Jayapal, 2025).

It is worth noting that through the use of AI, it is now easier to foster trust, satisfaction, and personalized experiences, leading to customer advocacy. A study reported that 73% of the customers trust AI-generated content, and 53% are confident in AI-assisted financial advice, reflecting the growing confidence in AI as a tool in the banking industry (Fazelian, 2026). Additionally, a recent industry report, "The Financial Brand," revealed that 44% of financial institutions using AI for personalization report improvements in loyalty and retention metrics, leading to customer advocacy by recommending their banks to other customers (Ashrafuzzaman et al., 2025).

The paper is organized into four main sections. The first section presents the introduction, covering the rationale of the topic, a brief literature review, the research gap, the specific objectives, and a brief outline of the paper structure. The second section covers the methodology, describing the study area, research design, sampling procedure, and sample size, data collection methods, data analysis, and the reliability and validity of the collected data. The results and discussion section follows, where the following issues were presented: categories of the respondents, demographic profile of the respondents, reliability analysis, and SEM results. Finally, the last section was the conclusion and recommendations.

1.1 Statement of the Problem

Artificial Intelligence (AI) technologies renovated how institutions conducted customer experiences through personalization. Within banking industry, AI-powered tools such as; chatbots, predictive analytics, and recommendation systems allow financial institutions operate as per individual customer needs hence refining engagement and service efficiency. Scholars argue that AI-driven personalization has made strategy for attracting customer relationships and competitive advantage in modern markets (Kotler & Keller, 2015). Despite the global progress of these technologies, their real addition in many developing economies remains unequal. In some cities like Mwanza, where the banking



sector adopting digital technologies, restricted empirical sign occurs on how AI applications impact customer interaction and personalization results. As noted by John W. Creswell, a research problem arises when there is “an issue or concern that needs to be addressed by a study” (Creswell et al., 2004). Thus, the rising of AI in financial services grants an important situation for examining how technology-driven personalization touches customer engagement and service involvements in evolving urban markets.

Additionally, although AI technologies aptitude well customer satisfaction and retention, many financial institutions in Mwanza still face challenges connected to technological integration, digital literacy, and customer trust in automated systems. This condition makes a gap between the potential benefits of AI-driven personalization and its concrete impact on customer relationships within the local banking place. Research specifies that actual personalization approaches can significantly stimulus long-term customer relationships and service value creation (Rust & Huang, 2014). Loyalty and retention frequently depend on steady service delivery and trust, which develop slowly through positive customer knowledges (Oliver, 1999). Despite these understandings, there remains limited empirical research investigative how AI adoption donates to customer engagement, advocacy, loyalty, and retention in Tanzanian banking circumstances. Therefore, this study seeks to address this gap by examining how artificial intelligence technologies are leveraged for customer personalization and how such technologies influence customer relationship outcomes within the banking sector in Mwanza, Tanzania.

1.2 Research Objectives

- i. To examine the role of AI adoption in enhancing customer engagement in the Tanzanian banking industry
- ii. To determine the effect of AI adoption on customer retention in the banking sector
- iii. To assess the influence of AI adoption on customer loyalty in Tanzanian banks
- iv. To evaluate the impact of AI adoption on customer advocacy in banks in Mwanza

II. LITERATURE REVIEW

2.1 Theoretical Review

The study is guided by the Technology Acceptance Model (TAM), which posits that perceived usefulness and perceived ease of use influence users' acceptance of new technologies (Davis, 1989). By applying TAM, the study explores how AI adoption in banks translates into customer-centric outcomes, emphasizing personalization. Customer personalization in banking refers to tailoring services, communication, and products to meet individual customer needs, which has been found to improve satisfaction, trust, and long-term engagement (Bhattacharyya et al., 2021). Hence, exploring this relationship is both theoretically significant and practically relevant in the Tanzanian context. Technology Acceptance Model (TAM) has been extensively applied to understand user acceptance of Artificial Intelligence (AI) in banking. Recent studies have expanded TAM to include factors like trust, security, and perceived risk, enhancing its applicability in digital banking contexts (Byambaa et al., 2025). For example, research indicates that perceived trust and security significantly influence customers' behavioral intentions to use AI-driven banking services (Lopes, 2025).

By applying TAM, the study explores how AI adoption in banks translates into customer-centric outcomes, emphasizing personalization. Customer personalization in banking refers to tailoring services, communication, and products to meet individual customer needs, which has been found to improve satisfaction, trust, and long-term engagement (Bhattacharyya et al., 2021). Hence, exploring this relationship is both theoretically significant and practically relevant in the Tanzanian context. Technology Acceptance Model (TAM), developed by Davis (1989), provides a framework for explaining how individuals accept and use new technologies. The model focuses on perceived usefulness (PU) and perceived ease of use (PEOU), which influence users' behavioral intention to adopt technology (Venkatesh & Bala, 2008). In banking, PU relates to how AI improves efficiency and customer satisfaction, while PEOU reflects how easily staff and customers can interact with AI-powered systems (Malaquias & Hwang, 2019). TAM is relevant for investigating AI adoption and its impact on customer personalization.

2.2 Empirical Review

2.2.1 AI Adoption and Customer Engagement in Banking

Artificial Intelligence (AI) adoption appeared to be important aspect in attracting customer engagement for banking industry by allowing personalized, efficient, and real time communication. AI attributes like chatbots, virtual assistants, and predictive analytics assist banks to communicate instantly to customer needs while rendering services grounded on individual preferences. According to Baladari (2024) AI-driven systems expand responsiveness and service customization that eventually supports customer interaction, involvement, engagement hence customers experience maximum utility that resulted satisfaction through their deep in relationship with financial institutions.

Again, AI is found to facilitate continuous engagement across numerous of digital channels, such as mobile banking, websites, and social media platforms. As per Dwivedi et al. (2020), AI enables integrated and seamless



communication among banks and their customers to improve accessibility and suitability. To developing country like Tanzania, AI promotes financial presence by providing easily access to banking services through digital platforms (Mwaseba et al., 2026). However, empirical evidence on how AI-driven personalization specifically influences customer engagement in Tanzanian banks remains limited, particularly in Mwanza City, thus justifying further investigation.

2.2.2 AI Adoption and Customer Retention in Banking

AI adoption is very crucial and it act in a significant way to enhance customer retention by allowing banks to offer proactive, personalized, and efficient services. By using data analytics and machine learning, banks identify customer needs and deliver required financial resolutions that bring satisfaction. Kumar et al. (2016) say that organizations leveraging AI technologies are in good position to eliminate inconvenient from their customer by offering customized experiences that meet customer expectations. This personalized method reinforces customer relationships that eventually rises long term relationship known as Customer retention.

AI Adoption improves retention of the customer by allowing proper service quality and operational efficiency in operation within banks. Chatterjee et al. (2025) found that the application of AI on customer service reduce time for response and enhance improved service in an accuracy way that led to customer satisfaction. In Tanzanian customer satisfaction remains a key determinant of retention, meaning that AI-driven improvements in service delivery can indirectly enhance retention rates (Angreani & Afifah, 20024; Mwita, 2022). Despite this, there is limited empirical research directly linking AI adoption to customer retention in Tanzanian banks, highlighting a contextual gap that this study seeks to address.

2.2.3 AI Adoption and Customer Loyalty in Banking

Customer loyalty influenced by an ability of the banks to deliver consistent and personalized services to their customers through the use of AI technologies. Through AI, banks analyze customer data and provide personalized recommendations that bring customer satisfaction. As per Verhoef (2020), personalized customer experiences long term customer loyalty by remain committed to institutions that meet their specific needs.

Customer Loyalty can be built by the use of AI by improving service quality in an efficiently and effectively. Huang and Rust (2021) state that AI systems provide proper decision-making during service delivery, that in turn shapes customer perceptions and then build trust in banking institutions. These Aspects contribute strong sensitive influences and long-term commitment for engaged customer of the bank concerned. However, in Tanzania, most studies on customer loyalty focus on traditional determinants such as service quality and trust with limited attention given to AI adoption. This indicates a need for empirical research on how AI-driven personalization influences customer loyalty in Mwanza City.

2.2.4 AI Adoption and Customer Advocacy in Banking

Customer advocacy is the act of customer(s) to recommend a bank's services to others as the results of positive customer experiences and satisfaction. AI adoption contributes much to customer advocacy by enabling banks to bring personalized and efficient services that meet customer expectations. Lemon and Verhoef (2016) highlight that superior customer experience across the customer journey plays a crucial role in encouraging positive word-of-mouth behavior. Through AI technologies, banks enhance these experiences hence increasing customer advocacy.

AI-driven personalization fortifies customer relationships that lead to high level of trust and emotional attachment. Huang and Rust (2021) comment that AI enables firms to shape bottomless interactions with customers that translated into advocacy behaviors. Satisfied and loyal customers remain extra to share positive experiences and recommend their bank to others. However, empirical studies examining the direct impact of AI adoption on customer advocacy are scarce, particularly in developing countries such as Tanzania specifically in Mwanza City. This study therefore aims to fill this important research gap.

III. METHODOLOGY

3.1 Study Area

The study was conducted in Mwanza city, Tanzania, targeting the commercial banks in the area. Mwanza city was purposively selected due to three fundamental facts. First, Mwanza is a vibrant city and the main socio-economic hub connecting the lake zone, characterized by digital transformation and integration of ICT in the banking space. Second, Mwanza is one of the fastest-growing cities in Tanzania, second to Dar es Salaam and the second most populated city behind Dar es Salaam as per NBS 2022 statistics. Furthermore, banks were selected since AI is believed to have more impact on the financial sector (banks included) in recent years (Saha et al., 2025).

3.2 Research Design

A cross-sectional survey design was considered most appropriate for this study since it permits the researcher to collect data from large population at a single point in the same time, making it efficient for examining relationships among variables such as AI-driven personalization, customer engagement, and loyalty without requiring extended follow up. As noted by Creswell and Creswell (2017), cross-sectional designs are useful when a study aims to “measure current attitudes or practices” within a population, while Saunders and Tosey (2012) emphasize that; such designs are suitable for descriptive and explanatory research where variables are analyzed simultaneously. This approach is particularly relevant in dynamic environments like digital banking, where customer observations and behaviors can be successfully captured at a specific instant in time. Furthermore, Bryman (2016) contends that cross-sectional surveys improve generalizability when large samples are used, making them ideal for studies looking to establish statistical relationships rather than causal inferences. Therefore, the design providing a practical, reliable, and cost-effective means of addressing the study objectives within the Mwanza context. A cross-sectional survey design enhances the efficiency of data collection from different respondents’ groups at a single point in time, allowing researchers to capture current attitudes, perceptions, and behaviors across multiple categories of respondents, from employees with diverse roles ranging from marketing managers and digital officers to IT specialists and branch managers (Thakur et al., 2021).

3.3 Target Population

The target population for this study comprised bank officers working in commercial banks within Mwanza, including institutions such as CRDB Bank, NMB Bank, and NBC Bank Tanzania, Mkombozi Commercial Bank, AKIBA COMMERCIAL BANK, Equity Bank Tanzania Mwanza Branch, KCB Bank, Standard Chartered Bank, Stanbic Bank, Tanzania Commercial Bank, and UBA Bank. Precisely, research focused on key personnel straight involved in the design, implementation, and management of AI-driven customer personalization strategies, including marketing managers, digital marketing officers, customer service officers, IT officers, Systems analysts, and Branch managers. The stated respondents certain due to the fact that they possess experience operations resulted from practical and strategic insights on artificial intelligence and its tools in enhancing customer engagement, retention, and loyalty. As emphasized by Saunders et al. (2023), a target population should consist of individuals who are “knowledgeable about the research issue and capable of providing relevant data,” while Creswell et al. (2014) notes that selecting respondents with direct experience improves the validity and reliability of findings. The Bank of Tanzania underscores the growing role of digital transformation and AI-enabled systems in banking operations, further justifying the inclusion of both managerial and technical staff (Ishengoma & John, 2025). Therefore, focusing on these categories of bank officers for various banks located in Mwanza, the study provides a well-informed and contextually appropriate on leveraging artificial intelligence for customer personalization.

3.4 Sampling Procedure and Sample Size

A purposive sampling approach was used to identify key informants working in key areas that directly relate to AI usage. The present study analyzes around model-based power and not the rules of thumb using SEM guidance. Notably, previous studies noted that SEM can be used effectively even when the sample size is less than 100 (Buchberger et al., 2024; Saunders et al., 2023). A systematic literature review study conducted in 2023 revealed that many published SEM studies in developing countries used sample sizes below 100 (Shela et al., 2023). Thus, our selection of a sample size (n=100) is within a normal practice. The sample size targeted the bank officials, including the Marketing managers, Customer service officers, IT officers/systems analysts, digital marketing officers, and Branch Managers.

3.5 Data Collection Method

Structured questionnaires were distributed to 100 bank officials in order to collect quantitative data on AI adoption and Customer Personalization performance.

3.5.1 Measurement of Variables

AI Adoption, Customer Engagement, Customer Loyalty, Customer Advocacy, and Customer Retention, measured by means of multi-item scales. All measurement items intended to trap bank officials’ perceptions regarding how artificial intelligence tools (e.g., chatbots, personalization engines, and digital assistants) support customer personalization in the banking sector in Mwanza.

All variables are measured using a five-point Likert scale, where 1 = Strongly Disagree and 5 = Strongly Agree, so that respondents can indicate the level of their knowledge on either to agree with each statement concerning AI application and customer relationship outcomes. AI Adoption was measured through items shiny the extent in which banks implement AI-driven technologies for customer service and personalization. Using multiple indicators for each construct aligns with recommended practices in quantitative research, where latent variables are measured through observable indicators to strengthen reliability and validity (Hair et al., 2021). These measurement procedures enable the

study to systematically evaluate the relationships between AI adoption and customer relationship outcomes through Structural Equation Modeling (SEM). Various codes and statements used for each construct, For example AI Adoption used AIA named from One to Four as per number of statements in this variable hence the codes and statements were: AIA1- Our bank actively uses AI technologies such as chatbots, recommendation engines, or digital assistants, AIA2- AI systems are regularly applied to support customer personalization strategies, AIA3- AI technologies play an important role in enhancing the bank's digital service delivery and AIA4- The bank continues to invest in AI-driven solutions to improve customer experience.

For Customer Engagement the code symbolized by CE in which; CE1- AI-powered services increase the level of interaction between customers and the bank, CE2- Personalized recommendations generated by AI encourage customers to engage more frequently with banking services and CE3-AI-enabled communication channels improve the convenience of customer-bank interactions. The code Customer Loyalty was CL with; CL1- AI-enabled personalized services contribute to customers remaining loyal to the bank, CL2-Customers who use AI-supported banking services tend to maintain long-term relationships with the bank and CL3- AI-driven personalization strengthens customers' preference for our bank over competitors.

For Customer Advocacy the code was CA whereby; CA1- Customers who benefit from AI-based services often recommend the bank to others, CA2- Positive experiences with AI-powered services encourage customers to speak positively about the bank and CA3- AI-enabled personalization increases customers' willingness to promote the bank within their social networks.

The last one was Customer Retention with CR as the code and; CR1- AI-driven personalization contributes to retaining customers in the bank, CR2- Customers who regularly use AI-supported services are less likely to switch to other banks and CR3- The use of AI technologies helps maintain long-term customer relationships.

3.6 Data Analysis

Demographic characteristics were collected through descriptive statistics showing the general patterns of AI adoption in banks through SPSS, while the Structural Equation Modelling (SEM) was used to test the hypotheses through Python software.

3.7 Reliability and Validity

3.7.1 Validity

Validity refers to the extent to which the tools used to collect data meet the accepted quality standards and accurately measure what is being studied (Mohajan, 2017). The present study ensured validity by first subjecting the questionnaires to a pilot test where by 20 respondents from the target population who were not part of the study answered the posed questions in order to examine the validity of the questionnaire. Item validity examined by using correlation analysis, in which items with correlation values greater than 0.30 were considered valid. The results confirmed that all measurement items were appropriate for the main survey. According to Uma Sekaran and Roger Bougie, pilot testing aids classify unclear questions and recovers the value of research instruments (Sekaran & Bougie, 2016).

3.7.2 Reliability

Consistency and stability of research instruments in producing similar results if repeated by different researchers is termed as reliability (Kothari, 2017). To ensure reliability is adhered to, the structured questionnaire was pre-tested on a sample of selected bank officials in Mwanza city. The feedback from the respondents enabled the researchers to revise the questionnaires before embarking on the data collection exercise.

IV. FINDINGS & DISCUSSION

4.1 Category for Respondents

Table 1 below presents the categories of 100 banking personnel used in this study.

Table 1

Category for Respondents

S/N	Category of Respondents	Number of Respondents	Percentage (%) of Respondents
1	Marketing managers	20	20
2	Digital marketing officers	10	10
3	Customer service officers	40	40
4	IT officers/systems analysts	20	20
5	Branch managers	10	10
	Total Respondents	100	100



4.1.1 Marketing Managers

As presented in Table 1, twenty (20) marketing managers participated in the study, providing strategic perspectives on AI adoption in digital marketing. Their contributions revealed how managerial decision-making influences the integration of chatbots, recommendation systems, and predictive analytics in aligning marketing strategies with institutional goals. They emphasized that leadership-driven strategies are essential in ensuring AI investments enhance personalization and competitive positioning in the banking sector (Gaćina, 2025).

4.1.2 Digital Marketing Officers

According to Table 1, ten (10) digital marketing officers formed a key respondent group in this study. Their input highlighted the operational dimension of AI adoption, particularly in implementing recommendation systems and predictive analytics to improve campaign timeliness, targeting, and efficiency. These officers underscored how AI tools optimize customer engagement and streamline digital campaigns, confirming the operational benefits of AI in financial services (Shah, 2025).

4.1.3 Customer Service Officers

Table 1 indicates that the largest group of respondents consisted of forty (40) customer service officers. Positioned at the frontline of customer interactions, they shared practical experiences with chatbots and AI-driven service tools. Their responses emphasized that chatbots significantly reduce response time and improve accessibility, although challenges persist in handling complex queries.

4.1.4 IT Officers/System Analysts

As shown in Table 1, twenty (20) IT officers participated, offering technical expertise on AI adoption in digital marketing. They highlighted the importance of secure infrastructure, reliable data integration, and continuous upgrades for the effective use of chatbots, recommendation systems, and predictive analytics. Their perspectives reinforce existing literature that emphasizes the technical backbone of AI deployment and the role of IT in bridging strategy with execution in the banking industry (Cudia & Legaspi, 2024).

4.1.5 Branch Managers

Table 1 also shows that ten (10) branch managers were involved in the study, representing a managerial perspective from the operational level. Their feedback revealed how AI integration—particularly through predictive analytics and chatbots supports efficiency, improves customer service delivery, and strengthens branch-level marketing outcomes. Their insights confirm that branch leadership is crucial in balancing traditional banking practices with digital innovations (Al Issa et al., 2024).

4.2 Demographic Profile of Respondents

Table 2

Demographic Profile of the Respondents

Variable	Sub-groups	Total Sample (n=100)	
		Frequency	%
Age (Years)	20-24 years	25	25
	25-29 years	35	35
	30 years and above	40	40
	Total	100	100
Gender	Male	45	45
	Female	55	55
	Total	100	100
Educational level	Certificate	5	5
	Diploma	45	45
	Bachelor	50	50
	Total	100	100
AI in Digital Marketing	Yes, I have used AI Tools	80	80
	No, I have not used AI Tools	20	20
	Total	100	100

4.2.1 Age Distribution

As indicated in Table 2, the age distribution of respondents reflected a broad representation across categories, with 25 participants between 20–24 years, 35 participants between 25–29 years, and 40 participants aged 30 years and

above, making a total of 100 respondents. The dominance of participants aged 30 years and above suggests that a significant portion of the banking workforce in Mwanza City comprises mature employees with practical experience in customer engagement and digital systems. Studies affirm that age diversity influences technology adoption, as younger employees may adapt more quickly to AI tools while older staff may rely on experiential knowledge to integrate these innovations into service delivery (Venkatesh et al., 2016; Mariani & Borghi, 2021).

4.2.2 Gender Distribution

Table 2 also illustrates that out of the 100 respondents, 45 were male and 55 were female. The slight female majority reflects inclusivity in the banking sector, where both genders actively contribute to digital marketing and customer service initiatives. Gender balance has been linked to improved team creativity, innovation, and responsiveness to customer needs, especially when adopting AI-driven solutions such as chatbots and predictive analytics (Rožman & Tominc, 2024). Furthermore, prior research highlights that gender diversity within financial institutions enhances organizational adaptability and fosters a more customer-centric culture in digital transformation (OECD, 2022).

4.2.3 Educational Level Distribution

Regarding education, Table 2 shows that 5 respondents held certificates, 45 held diplomas, and 50 held bachelor's degrees. The dominance of diploma and bachelor's holders reflects the high level of professional competence among respondents, which is critical for understanding and managing AI-driven digital marketing systems. Research highlights that higher educational attainment correlates with greater confidence and effectiveness in adopting emerging technologies, including recommendation systems and predictive analytics (Dwivedi et al., 2020). In this study, the educational composition assures that respondents possessed adequate knowledge to evaluate the integration of AI tools into digital marketing practices.

4.3 Reliability Analysis

Using SEM, the analysis evaluates the impact of AI adoption on customer engagement, retention, loyalty, and advocacy, and discusses the implications of these results in relation to the Technology Acceptance Model (TAM) and existing literature. Cronbach's Alpha was used to assess the reliability of the constructs. All constructs demonstrated acceptable to excellent internal consistency, indicating that the measurement items are consistent and suitable for further analysis.

Table 3

Reliability Test

Construct	Cronbach's Alpha
AI Adoption	0.9875
Customer Loyalty	0.7797
Customer Retention	0.9798
Customer Engagement	0.8858
Customer Advocacy	0.8838

AI Adoption and Customer Retention showed excellent reliability with alpha values above 0.97. Customer Engagement and Customer Advocacy also indicated strong reliability ($\alpha \approx 0.88$), while Customer Loyalty showed acceptable reliability ($\alpha = 0.78$).

4.4 SEM-Based Results and Interpretation

This section presents the results obtained from the Structural Equation Modeling (SEM) analysis. The analysis provides factor loadings, path coefficients, and significance levels that explain how AI adoption influences customer engagement, retention, loyalty, and advocacy in the Tanzanian banking sector. The results are further discussed in relation to the Technology Acceptance Model (TAM) and relevant empirical studies.

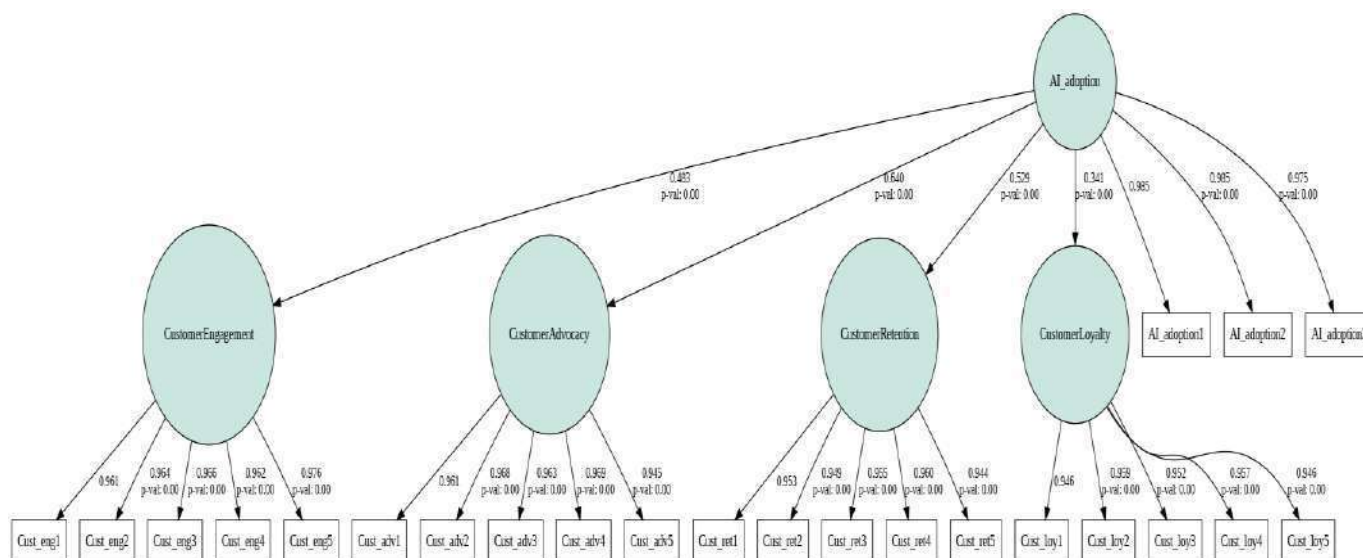


Figure 1
SEM Diagram

Figure 1 is a Structural Equation Model (SEM) diagram showing both the measurement model (how observed indicators relate to latent constructs) and the structural model (how latent constructs are linked to each other). Through Structural Equation Modeling (SEM), the study tests together measurement and structural components of TAM. The findings reveal that PU and PEOU significantly predict AI adoption, which subsequently affects customer-related outcomes. Specifically, the structural path from Customer Engagement to AI Adoption reveals a moderate positive coefficient ($\beta = 0.482$, $p < .05$), indicating that AI applications of chatbots, personalization engines, and digital assistants enhance interactive customer experiences. Moreover, AI adoption positively influences Customer Retention ($\beta = 0.409$, $p < .05$), suggesting that AI-enabled personalization strengthens long-term customer relationships. These results align with prior TAM-based studies that confirm the mediating role of acceptance variables between technological perceptions and organizational performance outcomes (Venkatesh & Davis, 2000). Therefore, the study rigorously applies TAM as an explanatory model rather than as a post-hoc justification, empirically validating its constructs within the AI-driven banking context. The results are consistent with a study conducted by Li et al. (2023). The latter study argued that personalization and value in use provided by chatbots significantly increase the user continuance intention through enhanced engagement.

Similarly, customer retention is positively influenced by AI adoption, with a significant path coefficient (0.409, $p < 0.05$). This suggests that banks leveraging AI systems can predict churn and proactively retain customers by offering tailored services. Research on AI-enabled customer retention systems supports this, showing AI improves retention through predictive analytics and timely interventions (Yoo et al., 2024). The SEM model confirms the second hypothesis, emphasizing retention as a major benefit of AI adoption in the banking context. This result is also consistent with the findings of Bajaba et al. (2026), who found that AI in banking has a significant direct effect on customers' retention, and this effect remains when mediated by customer satisfaction. The results also indicate that customer loyalty is significantly associated with AI adoption, with path coefficients of approximately 0.318 ($p < 0.05$). This implies that the more banks deploy AI to provide reliable, secure, and efficient services, the more customers are likely to remain loyal. A similar result was recorded by a recent study conducted in India, revealing that personalization significantly predicts customer loyalty when mediated by customer satisfaction and perceived usefulness (Jayapal, 2025).

Finally, customer advocacy is significantly enhanced by AI adoption, albeit with a moderate coefficient (0.529, $p < 0.05$) stronger than Loyalty ($\beta = 0.318$) implies the relational and socially consumption patterns exist within customers where by most consumers likely to share positive service experiences within their social networks hence amplifying advocacy behaviors (Hofstede, 2016). This demonstrates that customers who experience improved personalization and service delivery due to AI are more willing to recommend their banks. The positive, statistically significant relationship validates the fourth hypothesis. Advocacy here refers to customers recommending their bank to others, driven by their positive experiences with AI-enabled personalization. This aligns with industry reports, The Financial Brand™, which show that nearly 44% of financial institutions using AI for personalization report improvements in loyalty and retention metrics (Froment, 2024). Overall, all hypothesized relationships are supported ($p < 0.05$), affirming the Technology Acceptance Model (TAM) as a valid framework for understanding AI adoption in the Tanzanian banking industry.



Table 4
Standard Errors, t-Values, and Confidence Intervals

Relationship	Path Coefficient (β)	Standard Error	t-value	p-value	95% Confidence Interval
PEOU $\rightarrow$ PU	0.541	0.072	7.51	0	(0.401, 0.673)
PU $\rightarrow$ AI Adoption	0.463	0.081	5.72	0	(0.298, 0.612)
PEOU $\rightarrow$ AI Adoption	0.294	0.088	3.34	0.001	(0.119, 0.451)
Customer Engagement $\rightarrow$ AI Adoption	0.482	0.076	6.34	0	(0.336, 0.623)
AI Adoption $\rightarrow$ Customer Loyalty	0.318	0.091	3.49	0.001	(0.142, 0.475)
AI Adoption $\rightarrow$ Customer Advocacy	0.529	0.073	7.25	0	(0.392, 0.662)
AI Adoption $\rightarrow$ Customer Retention	0.409	0.084	4.87	0	(0.246, 0.561)

The results for the table above indicate that the relationship of all variables are statistically significant. Customer Engagement has a significant positive influence on AI Adoption ($\beta = 0.482$, $t = 6.34$, $p < 0.001$). Similarly, AI Adoption significantly affects Customer Advocacy ($\beta = 0.529$, $t = 7.25$, $p < 0.001$), Customer Retention ($\beta = 0.409$, $t = 4.87$, $p < 0.001$), and Customer Loyalty ($\beta = 0.318$, $t = 3.49$, $p < 0.01$). The confidence intervals for all structural paths do not include zero, confirming the strength of the estimated relationships. These findings demonstrate that the adoption of artificial intelligence significantly enhances customer personalization outcomes in the banking sector in Mwanza.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The study concludes that AI adoption significantly improves customer-centric outcomes in the Tanzanian banking sector, particularly in Mwanza. The SEM results demonstrated that AI adoption has positive and statistically significant effects on customer engagement, retention, loyalty, and advocacy, with path coefficients ranging between 0.318 and 0.529 ($p < 0.05$). These findings confirm that AI-enabled personalization enhances how customers interact with banks, reduces churn, fosters trust and loyalty, and encourages customers to actively advocate for their banks. Grounded in the Technology Acceptance Model (TAM), the results highlight AI adoption as a strategic driver of improved customer personalization in the banking industry.

5.2 Recommendations

In Mwanza, AI-driven personalization must be associated with dominant levels of digital and financial literacy to guarantee adoption. Although digital banking custom is growing in Tanzania, gaps in digital skill remain significant, among casual traders and micro-entrepreneurs. The progress of digital financial services must be gone with consumer education and abridged conveyance networks to enhance trust and serviceability. In this background, CRDB and NMB Bank respectively should prioritize Kiswahili-based lines, USSD well matched AI systems, and voice-assisted submissions to put up customers with limited smartphone proficiency.

Moreover, actual AI operation requires consolidation of employee capabilities and leveraging confined prognostic analytics. Frontline staff training can enhance customer assurance by illuminating how personalized commendations are produced and how data privacy is maintained. Since Mwanza's economy, is shaped by fishing, agriculture, and informal trade, extrapolative analytics should integrate other data sources, including mobile money transaction histories from services like M-Pesa, to expand credit access for customers missing formal financial records. Such data-driven personalization enhances both financial inclusion and customer loyalty.

Finally, regulatory provision is essential for harmonizing innovation and risk management. They should highlight the importance of equivalent regulatory frameworks that inspire digital innovation while protecting consumer data. Establishing AI-focused regulatory sand pit and establishment of data protection awareness in Kiswahili can stand in secure testing customer trust. AI governance needs transparency, accountability, and human-centered values. Therefore, embedding AI personalization within Mwanza's socio-economic and regulatory context can enhance engagement, retention, loyalty, and advocacy while sustaining competitiveness in Tanzania's evolving digital ecosystem.

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Informatics-driven optimization of electronic resources in multi-campus academic libraries: Evidence from Tanzania

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ABSTRACT

The rapid expansion of digital technologies has increased the importance of electronic resources in academic libraries for supporting teaching, learning, and research in higher education institutions. However, in multi-campus environments, disparities in infrastructure, system coordination, and user competencies often affect equitable access and effective utilization of these resources. This study examined how informatics principles can be applied to optimize the management and utilization of electronic resources in a multi-campus higher education institution, using the Institute of Accountancy Arusha (IAA) in Tanzania as a case study. The Technology Acceptance Model (TAM), Information Systems Success Model, and Digital Inclusion Theory guided this research. The target population included students, academic staff, librarians, and ICT personnel across the IAA campuses. A mixed-methods research design was employed, involving a questionnaire survey of 349 students selected through stratified random sampling and semi-structured interviews with 94 academic staff, librarians, and IT technicians selected using purposive sampling. Quantitative data were analyzed using descriptive statistics, including frequencies and percentages, while qualitative data were analyzed through thematic analysis. The findings indicate that although electronic resources are available across campuses, disparities in internet connectivity, digital literacy, and technical support affect their effective utilization. The study also found increasing use of artificial intelligence tools among students, often used alongside library databases for academic tasks. The study concludes that informatics-driven optimization requires improved ICT infrastructure, continuous user training, coordinated system management, and institutional policies guiding the responsible integration of emerging technologies in academic library services.

Keywords: Artificial Intelligence, Electronic Resources, Informatics, Library Services, Multi-Campus Systems, Tanzania

I. INTRODUCTION

Digital technologies have fundamentally transformed higher education libraries through the widespread adoption of electronic resources such as e-journals, e-books, online databases, and institutional repositories. These resources are now central to teaching, learning, and research activities, enabling faster access to scholarly information and supporting flexible learning models across geographical boundaries (Tenopir et al., 2023; Mwantimwa et al., 2021; World Bank, 2023). As universities increasingly rely on digital platforms, academic libraries are expected to manage complex information systems that ensure reliable access, effective retrieval, and meaningful use of electronic resources.

From an informatics perspective, the effectiveness of electronic library services depends on the interaction between technology, users, and organizational structures. Informatics emphasizes the systematic management of information systems by integrating digital infrastructure, data management processes, and user-centered service delivery (Alghamdi & Beloff, 2014; DeLone & McLean, 2016; Venkatesh et al., 2012). In academic libraries, this means that the availability of electronic resources alone is insufficient; system quality, user skills, institutional support, and policy alignment collectively determine successful utilization and service performance.

In multi-campus higher education institutions, informatics-driven management of electronic resources is more complex due to variations in infrastructure capacity, staff expertise, service coordination, and policy implementation across campuses. Empirical studies conducted in African universities indicate that despite substantial investments in electronic resources, utilization remains uneven because of unstable internet connectivity, limited digital literacy, and inadequate user support mechanisms (Mushi & Lwoga, 2022; Ndiege & Irura, 2023; Mwantimwa et al., 2021; Kimayani, 2026). These disparities are often more pronounced in satellite campuses, resulting in unequal access to academic information and inconsistent learning experiences within the same institution.

Artificial intelligence (AI) refers to computer-based systems capable of performing tasks that normally require human intelligence, such as information retrieval, content generation, and data analysis. In higher education environments, AI tools such as ChatGPT, Gemini, and Copilot are increasingly used by students to support academic tasks including assignments, literature searches, and research activities. These tools are widely adopted because of their



speed, accessibility, and perceived usefulness (Tenopir et al., 2023; United Nations Environmental, Scientific and Cultural Organization [UNESCO], 2023; Zhai, 2024). While AI tools offer opportunities to support learning and research, they also raise informatics-related concerns regarding academic integrity, reliability of AI-generated content, and declining engagement with authoritative library databases (UNESCO, 2023; Ndiege & Irura, 2023). These developments require academic libraries to rethink how AI technologies can be integrated into existing information systems without undermining scholarly standards.

The Institute of Accountancy Arusha (IAA) operates as a multi-campus higher education institution and continues to invest in electronic resources to support academic excellence. However, observable differences in access, utilization, and library service delivery across its campuses suggest persistent informatics challenges related to infrastructure, user capacity, and system coordination. Despite the relevance of these challenges, limited empirical research has examined informatics-driven optimization of electronic resources and library services within Tanzanian multi-campus institutions (Mwantimwa et al., 2021; Mushi & Lwoga, 2022; Ndiege & Irura, 2023). This study therefore investigates how informatics principles can be applied to optimize electronic resource management and library service delivery at the Institute of Accountancy Arusha, with the aim of promoting equitable access, effective utilization, and improved academic outcomes.

1.1 Research Objective

- i. Assess the current status of electronic resources and library services across IAA campuses;
- ii. Identify informatics-related challenges affecting equitable access to electronic resources in a multi-campus environment;
- iii. Examine the influence of artificial intelligence tools on students' use of library electronic resources;
- iv. Propose informatics-driven strategies for optimizing electronic resource management and library service delivery

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) explains how users adopt and utilize information technologies based on two key factors, perceived usefulness and perceived ease of use (Venkatesh et al., 2012). In academic libraries, TAM is commonly used to explain the adoption of electronic resources such as online databases, e-journals, and digital repositories. When users perceive electronic resource systems as useful for academic tasks and easy to navigate, their likelihood of using these systems increases. In this study, TAM provides a framework for understanding how students interact with electronic resources and emerging artificial intelligence tools in academic environments. Differences in system accessibility, training opportunities, and user experience across campuses may influence students' perceptions of usefulness and ease of use, thereby affecting their utilization of electronic resources.

2.1.2 Information Systems Success Model

The Information Systems Success Model developed by DeLone and McLean explains how system quality, information quality, and service quality influence the success of information systems and their continued use (DeLone & McLean, 2016). In the context of academic libraries, these elements determine how effectively users can access and utilize electronic resources. System quality refers to the reliability and accessibility of digital platforms, information quality relates to the relevance and credibility of electronic resources, and service quality concerns the support provided by librarians and technical staff. In multi-campus institutions, variations in internet connectivity, system performance, and technical support can affect the overall effectiveness of electronic resource utilization. This model therefore helps explain how informatics infrastructure and service delivery influence the use of electronic resources across campuses.

2.1.3 Digital Inclusion Theory

Digital Inclusion Theory emphasizes equitable access to digital technologies, digital skills, and online information resources. In higher education institutions, disparities in infrastructure, internet connectivity, and digital literacy can lead to unequal access to academic information resources (World Bank, 2023).

In multi-campus environments, students located in satellite campuses may experience limited internet connectivity or fewer technological resources compared to those in main campuses. These disparities can influence the level of access to electronic resources and library services. In this study, Digital Inclusion Theory helps explain differences in electronic resource access and utilization across campuses of the Institute of Accountancy Arusha.



2.2 Empirical Review

2.2.1 Status of Electronic Resources and Library Services in Higher Education

Electronic resources have assumed a central role in teaching, learning, and research in higher education. Academic library services have started to provide e-journals, e-books, online databases, and institutional repositories to support teaching, learning, and research. However, an empirical study carried out among Tanzanian universities revealed that the utilization rate of electronic resources varied. Mwantimwa et al. (2021) observed that academic staff and researchers in Tanzanian universities frequently used electronic resources to perform their scholarly communication. However, the accessibility of the resources varied among the universities. Empirical studies carried out among Tanzanian universities revealed that the preferences of Tanzanian university students to use electronic resources or traditional resources are affected by some factors such as the level of access to the resources, the usefulness of the resources to the students, and the reliability of the resources (Samzug, 2019).

2.2.2 Informatics-Related Challenges Affecting Electronic Resource Utilization

Empirical studies have shown that infrastructural and user-related challenges affect the utilization and access of electronic resources in higher learning institutions. Research carried out in higher learning institutions in Mwanza City revealed that students experienced difficulties in accessing electronic resources due to poor internet connectivity and lack of awareness and information literacy skills (Mwamasso & Onyango, 2020). Similarly, Kimayani (2026) found that access to digital information resources in Tanzanian universities is significantly influenced by ICT infrastructure limitations and varying levels of digital literacy among users. The challenges were mainly experienced in satellite campuses compared to main campuses due to poor internet connectivity and limited ICT infrastructure. Research carried out in East African universities revealed that infrastructural challenges and poor technical support services negatively impact access and utilization of digital library resources (Ndiege & Irura, 2023).

2.2.3 Influence of Artificial Intelligence Tools on Information-Seeking Behavior

Recent empirical studies indicate that artificial intelligence technologies are increasingly shaping students' information-seeking behavior in higher education environments. AI-powered tools provide rapid responses, automated writing assistance, and simplified information retrieval, making them attractive for academic tasks such as assignments and research activities (Zhai, 2024). However, researchers have also raised concerns regarding the reliability and ethical implications of AI-generated information in academic environments. UNESCO (2023) emphasizes that although AI technologies provide opportunities to support learning and research, their use may raise concerns related to academic integrity and the credibility of information sources. Studies also suggest that students increasingly combine AI tools with traditional academic databases rather than replacing them entirely (Tenopir et al., 2023).

2.2.4 Informatics-Driven Strategies for Improving Electronic Resource Utilization

Several studies emphasize the importance of institutional strategies aimed at improving electronic resource utilization in academic libraries. Training programs that strengthen information literacy and database searching skills have been identified as effective in improving students' ability to locate and evaluate digital information resources (Rafiq et al., 2023). In addition, improvements in ICT infrastructure, reliable internet connectivity, and effective technical support services have been identified as critical factors for enhancing electronic resource utilization in higher education institutions (World Bank, 2023). These strategies are particularly important in multi-campus environments where disparities in infrastructure and user competencies may affect equitable access to digital information resources.

2.3 Research Gap

Although several studies have examined the utilization of electronic resources in higher education institutions, most of these studies focus on single-campus universities and primarily address issues related to user awareness, digital literacy, and access to digital collections. Limited attention has been given to how informatics infrastructure and system coordination influence electronic resource management in multi-campus academic environments. In addition, the growing influence of artificial intelligence tools on students' information-seeking behavior has received limited empirical attention in the context of academic library systems. This study therefore seeks to address these gaps by examining how informatics principles can be applied to optimize electronic resource management and library services in a multi-campus higher education institution.

III. METHODOLOGY

3.1 Research Design

The study employed a mixed-methods design for the study. The design was considered appropriate for the study since it would provide an extensive understanding of the patterns of electronic resource utilization as well as the



perceptions of the users and the experts who are involved in the management of the library or information system (Creswell, 2023; Saunders et al., 2023). The quantitative study was used to assess the access and utilization of the students to the electronic resources, while the qualitative study was used to investigate the experiences of the academic staff, librarians, and ICT experts.

3.2 Study Area

The study was carried out at the Institute of Accountancy Arusha (IAA), a public institution that offers higher learning education up to postgraduate levels in fields like accounting, business, and information technology, among others. The institution operates a multi-campus system with its main campus located in Arusha Municipality. The institution has other campuses located in Dar es Salaam, Dodoma, Songea, and Bukombe. These campuses are all connected to the institution's electronic resources and library services. The multi-campus system of the IAA presents a unique opportunity for a study on the management and usage of electronic resources by the institution. This is because, although the institution has access to electronic resources, different infrastructural facilities may affect the usage of these resources by different campuses. Therefore, the study on the usage of informatics for the optimization of these resources by the institution presents a unique opportunity for a study on the management of these resources by the institution.

3.3 Target Population

The target population for this study was students, academic staff, librarians, and ICT staff from all campuses of the Institute of Accountancy Arusha (IAA). This population was considered relevant for the study since they are the ones actively involved in accessing, managing, and utilizing electronic resources and services from the libraries in the institution. The students formed part of the population since they are the major users of electronic resources for their assignments and research work. Academic staff, librarians, and ICT staff formed part of the population since they are actively involved in teaching, information access, and management of digital information systems. This provided a holistic point of view on the utilization of electronic resources and informatics issues in the institution.

3.4 Sampling and Sample Size

The study used both probability and non-probability sampling methods to select the respondents from the Institute of Accountancy Arusha (IAA). Stratified random sampling was used to select the students for the quantitative study. The students were selected from various campuses to ensure proportional representation of the target population. A total of 349 students took part in the questionnaire study. Purposive sampling was used to select the respondents for the qualitative study. The study selected the respondents based on their professional experience in teaching, library services, and information system management. The respondents for the interview study consisted of 67 academic staff, 11 ICT technicians, and 16 librarians. A total of 94 professional respondents took part in the study. The sampling methods used for the study ensured that it covered general patterns of electronic resource utilization among students and specific perspectives of the professional community on the subject matter.

3.5 Data Collection Tools and Procedure

Data were collected using questionnaires, semi-structured interviews, and document review. Questionnaires were administered to students and academic staff to obtain quantitative data on access, utilization, and perceptions of electronic resources and library services. Semi-structured interviews were conducted with librarians and ICT personnel to collect qualitative information on electronic resource management practices, operational challenges, and improvement strategies. Document review involved examination of library usage statistics, institutional reports, and relevant policy documents to support and validate primary data. The combination of these methods enabled comprehensive data collection and enhanced the reliability of the study findings through triangulation.

3.6 Data Analysis

Quantitative data collected through questionnaires were analyzed using descriptive statistics, including frequencies, percentages, and mean scores, to summarize patterns of electronic resource access, utilization, and service quality across campuses (Saunders et al., 2023). The results were presented in tables and figures to enhance clarity and interpretation. Qualitative data obtained from interviews were analyzed using thematic analysis. Interview responses were transcribed, coded, and organized into themes related to electronic resource management, access challenges, and service improvement strategies (Braun & Clarke, 2022). Document review data were used to support and validate findings from both quantitative and qualitative analyses. The integration of quantitative and qualitative results enabled comprehensive interpretation of the findings and strengthened the alignment between the data and the research objectives (Creswell, 2023).

3.7 Ethical Considerations

Ethical standards were observed throughout the study to ensure the protection of participants and the integrity of the research process. Participation in the study was voluntary, and respondents were informed about the purpose of the research before data collection. Informed consent was obtained from all participants prior to administering questionnaires and conducting interviews. Confidentiality and anonymity of the participants were maintained by ensuring that personal identities were not disclosed in the research report. The collected data were used strictly for academic purposes and handled with appropriate care to prevent unauthorized access. Participants were also assured that they could withdraw from the study at any stage without any negative consequences.

IV. FINDINGS & DISCUSSION

4.1 Respondent Profile

The next subsection presents the profile of respondents who took part in the study. This profile includes the profile of the respondents from the student population based on the study levels and the professional profile of the participants interviewed. This profile is essential in providing a background for interpreting the results on the utilization of electronic resources and services in the library.

Table 1

Distribution of Student Respondents by Campus (n = 349)

Campus	Frequency	Percentage (%)
Arusha	235	67.33
Dar es Salaam	78	22.35
Dodoma	18	5.16
Songea	11	3.15
Bukombe	7	2.01
Total	349	100.00

The results in Table 1 show that Arusha campus contributed the highest proportion of respondents (67.33%), followed by Dar es Salaam campus (22.35%). Dodoma, Songea, and Bukombe campuses contributed smaller proportions. This distribution ensured representation of all campuses while reflecting their relative population sizes.

Table 2

Student Respondents by Study Level (n = 349)

Study Level	Frequency	Percentage (%)
Bachelor's	276	79.08
Postgraduate	73	20.92
Total	349	100.00

The results in Table 2 indicate that the majority of respondents were Bachelor's degree students (79.08%), while postgraduate students accounted for 20.92%. This distribution reflects the general enrollment structure of the institution while ensuring representation of postgraduate perspectives.

Table 3

Interview Respondents by Professional Category (n = 94)

Category	Frequency	Percentage (%)
Academic staff	67	71.28
IT technicians	11	11.70
Librarians	16	17.02
Total	94	100.00

Table 3 shows that academic staff formed the largest proportion of interview respondents (71.28%), followed by librarians (17.02%) and IT technicians (11.70%). This distribution ensured that pedagogical, managerial, and technical perspectives were adequately represented in the qualitative findings.

4.2 Status of Electronic Resources

This section focuses on the availability status of the electronic resources and library services within the campuses of the Institute of Accountancy Arusha (IAA). The analysis of the status of the available resources, which are



e-journals, e-books, online databases, and institutional repositories, is carried out with regards to the access and utilization of the resources by the students within the campuses of the concerned institutions. From the findings, the main campuses of the concerned institutions have the basic electronic resources, although the access and utilization status differ from campus to campus. The main campus shows higher access status compared to the satellite campuses. The respondents from the satellite campuses complained of the lack of internet connectivity, which affected the utilization of the available resources.

4.3 Informatics Infrastructure and Access

This subsection analyzes how informatics infrastructure and system-related factors influence access to electronic resources. Particular attention is given to internet connectivity, system accessibility, and the functionality of digital library platforms across campuses.

The results show that more than half of the respondents (about 58%) reported easy access to library electronic resources. However, around 14% experienced difficulties, while a notable proportion remained neutral. This indicates that although electronic resources are generally accessible, access is not equally satisfactory for all students. In terms of academic usage, approximately 57% of students reported using library databases for assignments and research activities. At the same time, nearly one fifth of the respondents indicated that they do not rely on library databases. These findings suggest that while electronic resources play an important role in academic activities, their utilization is not yet consistent among all students.

The study found that more than half of the students could access electronic resources, but consistent utilization of library databases remained moderate. This finding is consistent with studies conducted in African universities, which reported that availability of electronic resources does not always guarantee effective utilization (Mushi & Lwoga, 2022; Ndiege & Irura, 2023). From an informatics perspective, this suggests that system accessibility must be supported by user skills, system design, and institutional support. The Information Systems Success Model explains that system quality, information quality, and service quality jointly influence system use (DeLone & McLean, 2016). In this study, gaps in usage indicate that some of these components are not fully optimized. In line with the Information Systems Success Model, the findings demonstrate that system quality and service quality significantly influence users' continued utilization of electronic resources across campuses.

4.4 Informatics Challenges

This subsection identifies the major informatics-related challenges affecting the effective utilization of electronic resources and library services across campuses. The findings indicate that internet connectivity is the most significant challenge influencing access to electronic resources. More than 73% of respondents reported that unstable internet connectivity limits their ability to access and use electronic resources effectively. This result highlights the strong relationship between ICT infrastructure and academic information access in digital library environments. Similar findings have been reported in Tanzanian and other African higher education institutions, where infrastructural limitations continue to affect digital learning and access to electronic resources (Mwantimwa et al., 2021; World Bank, 2023). These findings are further supported by Kimayani (2026), who reported that infrastructural limitations and user competencies significantly affect access to digital information resources in Tanzanian academic institutions.

The study also revealed that limited skills in using library databases affect the effective utilization of electronic resources. Nearly half of the respondents acknowledged difficulties in navigating academic databases, suggesting that digital literacy remains an important factor influencing electronic resource usage. This observation supports the argument that digital literacy is a critical component in informatics-driven information environments (Alghamdi & Beloff, 2024). In addition, moderate levels of satisfaction with library staff support suggest that service delivery mechanisms require further strengthening. Although library and ICT support services exist within the institution, their visibility and consistency across campuses appear to vary. Strengthening user support systems and improving technical assistance could therefore enhance the overall effectiveness of electronic resource utilization across the multi-campus environment.

4.5 Influence of Artificial Intelligence Tools

This subsection explores the growing role of artificial intelligence tools in shaping students' academic information-seeking behavior. The findings indicate that the use of artificial intelligence tools has become common among students. About 44% of respondents agreed or strongly agreed that they use AI tools for assignments, while approximately 36% remained neutral and about 20% disagreed. This suggests that although AI tools are widely adopted, a considerable number of students remain cautious or uncertain about their use. In relation to research activities, nearly 46% of students reported using AI tools, while about 36% were neutral and less than 18% indicated that they do not use them. These results show that AI tools are increasingly integrated into students' academic practices, although traditional academic approaches continue to remain relevant.



The findings indicate that artificial intelligence tools have become increasingly common among students, particularly for assignments and research activities. This confirms that AI technologies have become part of students' academic practices. Similar observations were reported by Tenopir et al. (2023), who noted that students increasingly rely on intelligent digital tools to support learning and research. The growing use of AI tools also aligns with the Technology Acceptance Model, which explains that perceived usefulness and ease of use influence technology adoption (Venkatesh et al., 2012).

However, the presence of a large neutral group suggests that some students are still uncertain about the academic value and ethical implications of AI tools. This supports concerns raised by UNESCO (2023), which emphasize the need for guidance on responsible and ethical use of AI in education. The findings therefore indicate that AI tools are not replacing academic resources, but rather reshaping how students interact with information systems. These findings further support the Technology Acceptance Model (TAM), which emphasizes perceived usefulness and ease of use as critical factors influencing technology adoption. The widespread but cautious use of AI tools reflects varying perceptions of their academic value and system reliability.

4.6 Optimization Strategies

This subsection presents strategies identified by respondents for improving the utilization of electronic resources and enhancing library service delivery within the multi-campus environment. The findings show that most students prefer using both AI tools and library databases in their academic work. About one quarter preferred AI tools only, while less than one fifth preferred library databases only. Very few students reported not using either option. These results demonstrate a shift toward blended information-seeking behavior where students combine modern AI technologies with traditional academic resources. Training and internet connectivity were strongly supported as improvement strategies. More than 90% of respondents agreed that training would enhance their ability to use library databases effectively. Similarly, a large majority supported improved internet connectivity as a key requirement for strengthening electronic resource utilization across campuses.

The preference for combining AI tools and library databases demonstrates a shift toward blended information-seeking behavior. This confirms that students do not view AI and library resources as competing systems, but as complementary tools. Similar findings were reported by Tenopir et al. (2023), who observed that users integrate multiple digital tools to satisfy academic needs. This behavior supports the Diffusion of Innovation theory, which explains how users adopt new technologies while still maintaining traditional systems (Rogers, 2003). In the context of this study, AI tools represent innovation, while library databases represent established academic systems. This blended use of AI tools and library databases reflects the Diffusion of Innovation theory, where new technologies are adopted alongside established systems rather than fully replacing them. Strong support for training and improved internet connectivity highlights the importance of institutional investment in both human and technical capacities. This aligns with UNESCO (2023) and World Bank (2023), which emphasize that digital transformation in education requires both infrastructure development and continuous capacity building. Training improves perceived ease of use, while internet improvement enhances system accessibility. Together, these factors promote effective adoption and sustainable use of electronic resources.

4.7 Summary of Findings

The findings of this study indicate that electronic resources and digital library services are available across the campuses of the Institute of Accountancy Arusha (IAA), including e-journals, e-books, online databases, and institutional repositories. However, their effective utilization varies across campuses due to differences in internet connectivity, ICT infrastructure, and the level of user support available. While the main campus reported relatively better access to electronic resources, respondents from satellite campuses experienced challenges related to unstable internet connectivity and limited technical support.

The study also revealed that informatics infrastructure and system factors significantly influence students' ability to access and utilize electronic resources. Although a majority of students reported having access to library electronic resources, consistent use of academic databases was not universal. Some students indicated limited reliance on library databases for assignments and research, suggesting that accessibility alone does not guarantee effective utilization. In addition, several informatics-related challenges were identified, including unstable internet connectivity, limited skills in using library databases, and varying levels of support from library and ICT staff. These challenges affect students' ability to effectively access and utilize electronic resources across campuses.

The findings further show that artificial intelligence tools are increasingly being used by students to support academic tasks such as assignments and research activities. Many students indicated a preference for combining AI tools with traditional library databases, reflecting emerging blended information-seeking behavior within the academic environment. Finally, respondents strongly supported strategies aimed at improving electronic resource utilization, particularly improved internet connectivity and training on the effective use of library databases. These strategies



highlight the importance of strengthening both technological infrastructure and user capacity in order to optimize electronic resource management and library service delivery within a multi-campus higher education institution. The discussion shows that informatics-driven optimization of electronic resources requires a balanced integration of technology, skills, policy, and institutional collaboration. AI tools are reshaping academic information behavior, but they cannot replace the academic value of library electronic resources. Instead, both systems must be harmonized to support academic excellence in multi-campus higher education environments. This finding is consistent with previous research conducted in Tanzanian universities, which highlighted similar challenges related to access and utilization of digital information resources (Kimayani, 2026).

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study examined informatics-driven optimization of electronic resources and library services in a multi-campus higher education institution, using the Institute of Accountancy Arusha as a case study. The findings provide important insights into how informatics infrastructure, system coordination, user capacity, and emerging digital tools influence access to and utilization of electronic resources in a multi-campus environment.

Regarding the first objective, the study concludes that informatics infrastructure and system factors play a significant role in determining access to electronic resources across campuses. Although electronic resources were available at all campuses, differences in internet reliability, system performance, and technical support resulted in unequal access. These findings demonstrate that effective access to electronic resources in multi-campus institutions depends not only on resource availability but also on the strength and consistency of underlying informatics infrastructure and system management. Regarding the second objective the study concludes that several informatics-related challenges negatively affect the utilization of electronic resources and library services. Key challenges include unstable internet connectivity, limited user skills in navigating library databases, and inconsistent support services across campuses. These challenges reduce effective use of subscribed electronic resources and contribute to uneven academic experiences among students. The findings emphasize the importance of addressing both technical and human factors in informatics-driven environments.

Regarding the third objective the study found that artificial intelligence tools have a noticeable influence on students' use of library electronic resources. Students increasingly combine AI tools with library databases due to convenience, speed, and accessibility. While this blended approach supports academic work, it also raises concerns related to academic integrity, quality of information, and reduced engagement with authoritative library resources. This indicates a need for libraries to guide the responsible and complementary use of AI tools within academic information systems. Regarding the fourth objective, the study concludes that informatics-driven strategies are essential for improving electronic resource management and library service delivery in multi-campus higher education institutions. Effective optimization requires integrated approaches that combine infrastructure improvement, continuous user training, coordinated system management, and clear institutional policies. Harmonizing these elements across campuses can enhance equitable access, improve utilization of electronic resources, and strengthen the overall academic information environment. Overall, the study concludes that informatics-driven optimization provides a practical and sustainable framework for addressing access disparities, utilization challenges, and emerging digital trends in multi-campus higher education institutions. By aligning technology, users, and organizational structures, institutions can enhance the effectiveness of electronic resources and library services and support improved academic outcomes.

5.2 Recommendations

Based on the findings of this study, the following recommendations are proposed to support informatics-driven optimization of electronic resources and library services in multi-campus higher education institutions. First, the management of the Institute of Accountancy Arusha (IAA) should prioritize the improvement and harmonization of digital infrastructure across all campuses. This includes upgrading internet bandwidth, improving network reliability, and ensuring consistent system performance, particularly in satellite campuses. Strengthening infrastructure is essential for reducing disparities in access to electronic resources and supporting effective utilization of digital library services.

Second, the IAA Library Directorate should strengthen capacity-building initiatives by implementing continuous training programs for students and academic staff on the effective use of electronic resources. These programs should focus on database searching skills, evaluation of scholarly information, and responsible integration of artificial intelligence tools with library resources. In addition, the Library Directorate should enhance awareness and outreach activities to improve visibility and use of subscribed electronic databases across all campuses. Third, the Information and Communication Technology (ICT) Departments should enhance system management and technical support services related to electronic resource access. This includes improving authentication mechanisms, ensuring regular system maintenance, and providing timely technical assistance to users. Close collaboration between ICT



departments and library staff is necessary to ensure smooth operation of electronic resource systems and consistent service delivery in a multi-campus environment.

Fourth, institutional policymakers and academic leadership should develop and enforce clear policies and guidelines on the academic and ethical use of artificial intelligence tools in higher education. These policies should promote the complementary use of AI tools and library electronic resources while safeguarding academic integrity and information quality. Harmonized policies across campuses will support responsible technology adoption and consistent informatics practices. Finally, future researchers are encouraged to conduct similar informatics-based studies in other multi-campus higher education institutions to enhance the generalizability of the findings. Further research should also examine the long-term effects of artificial intelligence tools on scholarly information behavior and evaluate the effectiveness of informatics-driven interventions in improving access to and utilization of electronic resources.

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Assessing project management practices and performance of government construction projects in Tanzania

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ABSTRACT

Using the regions of Arusha, Dar es Salaam, Dodoma, Morogoro, and Pwani as a case study, this research investigates how project management techniques affect the execution of public building projects in Tanzania. The study used the theory of construction management, the theory of the built environment, and resource mobilization theory to form its theoretical basis. The performance of construction projects in the aforementioned regions was monitored by the research project using the descriptive research approach. The study included government construction projects initiated between 2016 and 2024. Purposive sampling and simple random sampling were the sampling techniques used in this investigation. IBM's Statistical Package for the Social Sciences (SPSS) program (version 25.0) was used to import the data. Descriptive statistics like frequency and percentage were the main tools used in this study's data analysis. Additionally, multiple regression, analysis of variance (ANOVA), and Pearson correlation were employed. The results of the study showed that project performance in Tanzania's construction industry was positively and significantly impacted by project management, resource scheduling, project communication management, and project monitoring and evaluation. According to the study, companies should have a project management plan that is started by the project managers and used as a project tool or device during the execution and monitoring phases. Additionally, all project managers should ensure that they have an adequate number of project team members and strike a balance between overstaffing and understaffing. The study concludes that when a firm has monitoring and evaluation mechanisms in place, it will increase the chance of rectifying deviations and hence have effective performance.

Keywords: Communication, Project Management, Project Performance, Resource Scheduling, Tanzania

I. INTRODUCTION

The use of project management techniques by project managers overseeing the construction of roads, bridges, and buildings among others, has been emphasized in recent years. Additionally, this will lower project expenses that rise as a result of bad management and enhance performance (Xie et al., 2022). Effective administration of every construction project authorized by the budget aids the government in accomplishing the objectives set forth by the pertinent ministries. The advancement of information communication technology (ICT), adherence to quality standards, and strict deadlines have all had a significant impact on project management techniques (Irefin, 2013).

Effective project management is crucial to achieving the nation's objectives and guaranteeing the wise use of public funds in the fast-paced corporate world of today. Project control, which is keeping an eye on and managing every facet of the project to guarantee that it is finished on schedule, within budget, and to the necessary quality standards, is one of the most crucial components of project management (Ahuja et al., 1994). This makes it possible for project managers to spot problems and hazards early on and take corrective action to deal with them before they worsen. But according to Dahie et al. (2017, p. 39), "quality is regarded an important consequence of a project since the performance indicators of projects are usually focused on time, money, and quality, often known as the iron triangle."

For any project to be completed, project management is necessary. Making sure a project is successful is one of the primary goals of control. Project control ensures that projects are finished to the necessary quality standards, on schedule, and within budget (Del Pico, 2023). Additionally, it makes it possible for project managers to recognize risks and problems early on and take remedial action to deal with them before they worsen (Niederman, 2021). The second reason is to boost productivity; project managers may minimize waste and maximize project resources thanks to project management. As a result, project managers can keep an eye on developments and see any flaws or roadblocks so they may take corrective action to increase the project's efficacy. The third justification is risk reduction. By identifying and controlling project hazards, project management lowers the possibility of project failure. Project managers can reduce

the impact of unforeseen occurrences on the project by developing a thorough project plan and routinely monitoring and regulating project performance (Mpanju, 2024).

Tanzania's construction sector contributes significantly to the nation's economy, but it has been beset by a number of issues, such as rising project costs, unmanageable and unrealistic timelines, mishaps, subpar work, disputes between project team members and stakeholders, and neglect and incompleteness for both public and private sector construction projects. Infrastructure such as buildings falling, roads cracking, and bridges collapsing are commonplace these days, and nobody can predict what will happen next (Ndunguru et al., 2020). All of them demonstrate how the public's perception of Tanzania's construction industry is currently negative. Therefore, it is imperative to stop projects from failing, particularly because of inadequate project management in the industry. Therefore, the purpose of this study is to experimentally investigate how project management techniques, such as planning activities, managing human resources, and conducting feasibility studies, affect project success. The focus of the study was public sector projects in Arusha, Dar es Salaam, Dodoma, Morogoro, and Pwani regions.

1.1 Statement of the Problem

In order to achieve Development Vision 2030, Tanzania's infrastructure construction projects are essential and one of the main forces behind economic growth and development. Infrastructure building projects must be finished in order to support a nation's economic development, and stakeholders work to guarantee that the projects are finished on schedule, within budget, and with high quality. However, due to a variety of variables that adversely affect these projects' performance, the majority of infrastructure projects (such as road, rail, and dam projects) in Tanzania are not finished within the originally specified time targets. For instance, the Controller and Auditor General's (CAG) Annual General Audit Report of Development Projects for the Financial Year 2021/22 highlights the necessity for stakeholders to take corrective action by identifying significant gaps in numerous projects and offering suggestions for improvement (Msenga, 2021).

According to a study by Kisamo and Mokaya (2019), projects are hampered by a lack of planning abilities that are necessary for successful planning; because project planning is dangerous and complex, different skill sets are needed for successful project execution and management. The study came to the conclusion that having the necessary professional and technical abilities for project management is crucial to guaranteeing any project's success. In a similar vein, Kavishe and Chileshe (2018) looked into the difficulties in implementing Public Private Partnership (PPP) in housing projects in Tanzania's Dar es Salaam City. The results also showed how the general management and oversight of PPP projects are impacted by a lack of PM expertise. The PPPs' post-implementation and operation features also brought to light a number of concerns around who is responsible for running the housing properties.

According to the previously cited research, project management techniques have become increasingly popular as a means of enhancing the performance of building projects. Mgawe and Masanja (2018) used the National Housing Corporation (NHC) as a case study to investigate how procurement practices affect Tanzanian construction project performance. In a similar vein, Kajumulo (2023) carried out research on the identification and evaluation of critical components for enhancing Tanzanian construction management performance. The study identified seven critical elements for enhancing construction management: problem-solving capabilities, project manager leadership abilities, site climate, equipment and material costs, project construction timeline, site condition issues, and a shortage of skilled and qualified personnel. Although there is a dearth of empirical information, it is concerning that the county's road building projects have had delays, failed to satisfy quality requirements, and exceeded their budget forecasts. Based on this premise, the current study aimed to determine how project management techniques affected Tanzanian infrastructure development projects' performance.

1.2 Research Objectives

- i. To ascertain how planning affects government construction projects' performance in Tanzania's Arusha, Dar es Salaam, Dodoma, Morogoro, and Pwani regions.
- ii. To ascertain how resource scheduling affects government construction projects' performance in Tanzania's Dar es Salaam and Dodoma regions.
- iii. To evaluate how project communication affects government construction projects in Tanzania's Arusha, Dar es Salaam, Dodoma, Morogoro, and Pwani regions.
- iv. To investigate how government construction projects in Tanzania function in relation to project monitoring and evaluation.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 A theory of construction management

This theory that was developed by Radosavljevic and Bennett (2012), is an initiative for the provision of the foundation of construction management which highlights the necessary actions which help construction projects and firms to be efficient. It takes on the challenge of creating a precise, tightly defined model of construction management (CM), using five clearly differentiated methods for the delivery of building and construction projects. This is an ambitious and intellectually rigorous effort to bring fresh perspectives to the field of construction project management. Radosavljevic and Bennett (2012, p. 77) posit that “projects have a number of interacting teams where outcomes in the future depend on the number of involved teams, the quality of relationships between interacting teams and their performance variability”

2.1.2 A Theory of Built Environment

The theory was developed in the 1980s and it addresses all aspects of human being lives including the buildings we are living in, the water and electricity distribution systems and transportation systems (i.e. the roads and bridges) we use to move from place to another. Built environment examples include roads, urban spaces, cities, walkways, buildings, parks among others (Bates et al., 2023).

2.1.3 Resource Mobilization Theory

The resource mobilization theory was developed by McCarthy and Zald (1977). According to this theory, social movement organizations (SMOs) can acquire the resources they need via producing resources themselves, collect the resources of their members, or obtain from external. The resource mobilization theory insists on optimal and effective utilization of resources. In addition, resource mobilization theorists investigate at how the resources of the organizations impact their activities.

2.2 Empirical Review

2.2.1 Project Planning and Government Construction Projects' Performance

Construction projects need to be managed properly and efficiently in order to have better success. Thus, project managers need to have applied knowledge and skills in all aspects of management, namely planning, organizing, staffing, directing, coordinating, reporting, and budgeting. In their empirical study of local NGOs in Mogadishu, Dahie et al., (2017), found a statistically significant and positive correlation between project success (i.e. dependent variable) and the three constructs or independent variables, namely; managing human resources, feasibility study, and planning activities. Quality is considered as an important aspect for any service or product offered to customers. There are quality key performances indicators (KPIs) which are used to measure compliance to quality, thus project managers need to increase their awareness to project management practices. A study by Irefin (2013) indicates a significant relationship between project management and project quality. The author recommends for considering management skills and strategies in planning and implementation of construction projects. Similarly, research findings by Akewushola et al. (2012) revealed that there was a relationship between project quality and business success and technical success.

2.2.2 Resource Scheduling and Government Construction Projects' Performance

Construction companies engage themselves in unique projects such as roads, bridges, houses, schools, hospitals, railways, seaports, airports, etc. they rely upon essential skills by project managers for their sustainable business success. As such project managers need to have knowledge and technical expertise so has manage projects in an effective and efficient manner. The research findings by Elmezain et al. (2021) of five construction firm Egypt revealed that project manager's skills (i.e. human, technical, political, and conceptual) are significantly and positively associated with project success. However, the research findings did not reveal any relationship between product managers' age and project success. There is a need of involving key stakeholders in course of designing and planning the project, monitoring, controlling and evaluation phases. Stakeholders' involvement must be done as early as possible, especially during initiation phase when conducting situational analysis. The overall regression analysis results by Njau and Omwenga (2019) revealed that resource planning, project monitoring, top management support, and communication all had a significant and positive effect on the effective implementation of construction projects in Kenya.

2.2.3 Project Communication and Government Construction Projects

Project communication plays a critical role in ensuring that information is shared accurately and timely among project managers, contractors, consultants, and government agencies, thus enhancing coordination and decision-making. As such, project managers need to possess strong communication and interpersonal skills to manage diverse teams and

stakeholders efficiently. Satoinong et al., (2024) reveal that effective communication significantly improves team integration and project performance in construction projects. Similarly, Doloi (2013) found that communication among stakeholders positively influences project success by reducing delays and improving coordination. There is a need to involve key stakeholders in all stages of the project lifecycle, including planning, implementation, monitoring, and evaluation, to ensure alignment and minimize conflicts. However, Sambasivan and Soon (2007) found that although communication contributes to project performance, other factors such as financial constraints and poor planning may have a greater impact on project delays.

2.2.4 Project Monitoring and Evaluation and Government Construction Projects

Good contract management, risk management, government regulations, early design, proper decision making, and site supervision are among the important factors for good project's performance Mwakio et al., (2020) research on public housing projects in Mombasa County, Kenya, found a significant positive correlation between project planning, funding, risk planning, and the overall performance of such initiatives. Mwakio et al. (2020, pp. 1560-1561) concluded that "inappropriate risk identification, assessment and ranking leads to project delays or failure in case a risk materialises, risk planning and allocation of resources to mitigate against risks reduces occurrence of project failure, and that inadequately monitoring and control of risks due to lack of competent staff to take corrective measure leads to project failure". While prior research has examined the connection between project management practices and outcomes in both private and public sectors, or explored emerging trends in construction performance models, other studies have concentrated on identifying key factors to enhance construction management in Tanzania. Some have also assessed how procurement methods affect construction project performance in the country. In contrast, this study focuses specifically on evaluating the performance of public construction projects across five regions in Tanzania.

III. METHODOLOGY

3.1 Research Design

A descriptive research design was employed in order to examine the relationship between project management practices and the performance of public construction projects in Tanzania, taking Arusha, Dar es Salaam, Dodoma, Morogoro and Pwani regions as our case studies. Kothari (2004, p. 37) posits that "descriptive research studies are those studies which are concerned with describing the characteristics of a particular individual, or of a group". Thus, the descriptive design enabled the researcher to collect data that were able to describe the phenomena.

3.2 Study Area

The study took place in the United Republic of Tanzania. The study five regions namely; Arusha, Dar es Salaam, Dodoma, Morogoro, and Pwani regions.

3.3 Target Population

The Universe of the study covered public construction projects in Arusha, Dar es Salaam, Dodoma, Morogoro and Pwani regions as its population. The sampling was selected by using convenient sampling. The population targeted in this study was public construction projects in those regions. The investigation involved the projects managers, supervisors, and the contractors.

3.4 Sample Design

The sampling frame for this study comprised of 105 respondents. The sample was acquired from the National Construction Council (NCC). Depending on the nature of the population, both simple random sampling and purposive sampling were used to select our sample which included the project manager, supervisor, and contractor from each unit of study. Random sampling were used to select units of study to be involved whereas purposive sampling were used because the study needs to involve people who very well informed and have a deeper understanding about the project (Kothari, 2005).

3.5 Data Collection Instrument

Closed and open-ended questions were used to get information from street vendors. These questionnaires were self-administered to the respondents. The method gave more freedoms to respondents so that they can be free to give their views and opinion regarding the subject of the investigation.

3.6 Validity and Reliability of the Instrument

Instruments' validity refers to the extent or degree to which that instrument measures what it is supposed to measure (Kimberlin, 2008). For the purpose of collecting valid and relevant data, the questionnaires were examined by

research experts, including key informants and research supervisor. Reliability of research instruments refers to the consistency of results of those instruments when administered by different persons (Mohamad et al., 2015). Reliability tests were carried out via questionnaires. This study used the internal consistency method so as to ensure reliability. Cronbach's alpha coefficient was calculated to determine the correlation between different items under study. We obtained a coefficient equal to 0.85, which was considered to be sufficient.

3.7 Data Collection Methods

In this study, both primary and secondary data were used and the information were obtained through interview guide and questionnaire.

3.8 Data Analysis and Presentation

In the first stage, we undertook data cleaning, classification, and coding in order to facilitate analysis. In the second stage, we used inferential and descriptive statistics to analyse the data to be collected. Analysis of data was done with the help of SPSS (Version 25.0). The study mainly collected quantitative data, and therefore we adopted quantitative analysis in order to attain the goals of the study. Descriptive (frequencies, percentages, mean and standard deviation) and inferential statistics (regression model) were adopted to analyse the data. The regression model was utilized to establish a significant difference between the independent and the dependent variables. Data will be presented using mainly tables.

Inferential statistics will be done through a regression model.

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \dots\dots\dots \text{Eq 3.1}$$

Where:

Y = project performance

β_0 - constant term

X_1 - planning

X_2 -resource scheduling

X_3 - communication

X_4 - monitoring and evaluation

$\beta_1, \beta_2, \beta_3$ and β_4 are the independent variables' coefficients

ε - standard error term

3.9 Ethical Considerations

In order to guarantee that the research investigation was conducted according to the ethical standards and practices, the research obtained an introductory letter from the Institute. The researcher ensured the voluntary participation of all the respondents, and the data collection instruments, the questionnaires, did not contain personally identifiable information (PIN). Furthermore, the research notified the participants that the research is purely for academic reasons, and the results will be solely used for academic reasons.

IV. FINDINGS & DISCUSSIONS

4.1 Descriptive Analysis Results

This section presents descriptive analysis on the data which were obtained from the respondents in relationship with the dependent variable and independent variables. We used the mean and standard deviation to describe the data. In this regard, the strong approval of the statements by majority of the respondents was represented by the high mean whereas the degree of dispersion from the mean was represented by the standard deviation.

4.1.1 Planning and Government Construction Projects' Performance

In this aspect, this study sought to determine the effects of project planning on government construction projects' performance in the regions of Arusha, Dar es Salaam, Dodoma, Morogoro and Pwani. Various statements/information were included in the questionnaire to show the level of project planning on the selected projects. Table 1 summarizes the level of agreement of the respondents on aspects related to project planning regarding the performance of construction projects in those regions.

Table 1*Project Planning and Project Performance*

Statements	Mean	Std. Dev.
Clearly setting deadlines for the project in the project's initial plan is critical to the performance of the projects	4.32	0.188
Clearly setting deliverables in the project's initial plan affects the overall delivery of the project	4.13	0.339
Clearly setting roles and responsibilities for the project team improves the performance of the project	4.51	0.034
Clear stakeholder needs assessment and analysis contributes to the success of the project	4.11	0.311
Having SMART project objectives assist in the successful delivery of the project	4.48	0.007

The results in Table 1 show that most of the interviewed participants approved that clearly setting roles and responsibilities for the project team improves the performance of the project as shown by the average score of 4.51 and minimum standard deviation of 0.034. It is evident that most of the respondents agreed that having SMART project objectives assist in the successful delivery of the project as shown by the mean score of 4.49 and very low standard deviation of 0.006. Clearly setting deadlines for the project in the project's initial plan is critical to the performance of the projects as indicated by a mean score of 4.33 with a standard deviation of 0.187. The respondent was more accepting that clearly setting deliverables in the project's initial plan affects the overall delivery of the project as shown by the average score of 4.14 and the level deviation of 0.338. Respondents agreed that clear stakeholder needs assessment and analysis contributes to the success of the project as indicated by a mean score of 4.12 with a standard deviation of 0.310. Therefore, it is clear that project planning practices were being done effectively in the regions of Arusha, Dar es Salaam, Dodoma, Morogoro and Pwani.

4.1.2 Resource Scheduling and Government Construction Projects' Performance

The researcher asked the participants to explain their level of consistency in the information related to how resource scheduling affects the performance of construction projects in Arusha, Dar es Salaam, Dodoma, Morogoro and the Coast. Several resource planning indicators were used, and the results are presented in Table 2.

Table 2*Resource Scheduling and Project Performance*

Statements	Mean	Std. Dev.
Effective allocation and division of work among the available personnel affects project performance	3.17	1.966
Clearly setting roles for the individuals, teams, tasks, or departments improve the performance of the project	4.34	0.515
Clear budgetary allocation for all project activities helps in the overall management of project costs	4.38	0.997
Sufficient budgets for the project activities, teams, or departments improve project cost management	4.51	0.840
Proper allocation of project equipment facilitates smooth operations and successful project completion	4.59	0.684

The results in Table 2 indicate that some participants strongly agreed that the completion of the project was done without worrying about insufficient resources and that the project manager was able to predict cost as shown by the average score of 4.59 and 4.51, respectively. Moreover, more participants agreed that the project was properly managed and that there were sufficient funds planned to complete the project as indicated by an average score of 4.38 and 4.35, respectively. Lastly, the respondents were neutral on the statement that the cost of the project was estimated as shown by a mean of 3.17 and a standard deviation of 1.966. In general, it is clear from the research findings presented that proper resource planning was done as demonstrated by accurate cost estimates and on-time completion of project without any struggle.

4.1.3 Project Communication and Government Construction Projects' Performance

The study sought to establish the effect of communication on project performance. We used a combination of different indicators to determine the responses based on various statements as indicated in Table 3.

Table 3*Communication and Project Performance*

Statements	Mean	Std. Dev.
The formality of communication between the project teams contributes to the project success	4.20	0.789
There is often adequate level of communication in overall project matters	3.95	0.745
Adequate and timely feedback to contractors, project managers, and supervisors is a major boost in project performance	4.08	0.806
Information management contributes to the overall success of the project	4.12	0.595
Clarity in all communications influence the overall project success	4.07	0.738

The research results as presented in Table 3 indicated that majority of participants strongly agreed that the formality of communication contributes to the project success. as depicted by mean score 4.20 and a standard deviation of 0.789. Respondent also agreed Information management contributes to the overall success of the project as shown by mean score of 4.12. Also, respondents agreed that adequate and timely feedback to contractors, project managers, and supervisors is a major boost in project performance as indicated by mean score of 4.08. Alternatively, clarity in all communications influences the overall project success as shown by mean score of 4.07. Furthermore, respondent agreed that there is often adequate level of communication in overall project matters as depicted by mean score of 3.95.

4.1.4 Project Monitoring and Evaluation and Government Construction Projects' Performance

The study aimed to determine the effect of project monitoring and evaluation on project performance in five regions in Tanzania. The results were presented in Table 4.

Table 4

Project Monitoring and Evaluation and Project Performance

Statements	Mean	Std. Dev.
The use of the appropriate monitoring tools contributes to effective project time and cost management	4.56	0.198
Sufficient budgetary allocation for the monitoring and evaluation improves the project performance	4.59	0.127
Continuous evaluation can improve the performance of a project	4.70	0.455
Skilled monitoring and evaluation personnel affect the quality of the M&E results	3.17	0.454

The results in the Table 4 indicate that majority of the respondents agreed that continuous evaluation can improve the performance of a project as depicted by mean score of 4.70 and a standard deviation of 0.455; Sufficient budgetary allocation for the monitoring and evaluation improves the project performance as shown by mean score of 4.59 and low standard deviation of 0.127. The use of the appropriate monitoring tools contributes to effective project time and cost management as illustrated by mean score of 4.56 and a standard deviation of 0.198. Further, respondents were neutral that skilled monitoring and evaluation personnel affect the quality of the M&E results as illustrated by mean score of 3.17 and a standard deviation of 0.454. This is an indication that on average projects are monitored and evaluated as plan.

4.1.6 Government Construction Projects' Performance

The study sought to establish the level of government construction projects' performance in the four regions in Tanzania. Table 5 summarizes participants' level of agreement on various statements presented to them.

Table 5

Projects Performance

Statements	Mean	Std. Dev.
Level of quality service delivery is an indicator of project performance	4.76	0.157
Timely delivery of project deliverables determines the performance of a project	4.66	0.230
Lack of reworks or work revisions is an important determinant of overall satisfaction with the project	4.34	0.043
Delivery of projects within budget signal successful projects	4.32	0.033

Findings in Table 5 illustrates that greater part of the respondents agreed that the level of quality service delivery is an indicator of project performance as depicted by mean score 4.76 and a standard deviation of 0.157. Further, respondent also strongly agreed that timely delivery of project deliverables determines the performance of a project as shown by mean score of 4.66 and a standard deviation of 0.230. Furthermore, respondents approved that lack of reworks or work revisions is an important determinant of overall satisfaction with the project as illustrated by mean score of 4.34 and standard deviation of 0.043. Also, respondents affirmed that delivery of projects within budget signal successful projects s illustrated by mean score of 4.32 and standard deviation of 0.033.

4.2 Inferential Analysis

This section investigates the correlation between variables, presents analysis of variance, the model summary, and the coefficients of the independent variables.

4.2.1 Correlation Analysis

The study was undertaken to determine the correlation between the independent variables (project planning, resource scheduling, communication, and project monitoring and evaluation) and the dependent variable (project

performance). We calculated the correlation (strength) between the study variables and their findings by using the Pearson's coefficient of correlation (r). The findings are presented in Table 6.

Table 6
Correlation Analysis

		Performance construction projects	Project Planning	Resource Scheduling	Communication	Project Monitoring & Evaluation
Performance construction projects	Pearson Correlation	1				
	Sig. (2-tailed)					
Project Planning	Pearson Correlation	.533	1			
	Sig. (2-tailed)	.0032				
Resource Scheduling	Pearson Correlation	.6143	.3421	1		
	Sig. (2-tailed)	.0021	.0014			
Communication	Pearson Correlation	.7470	.1240	.0621	1	
	Sig. (2-tailed)	.0043	.0120	.0043		
Project Monitoring & Evaluation	Pearson Correlation	.5310	.3420	.0000	.1660	
	Sig. (2-tailed)	.0172	.0031	1.000	.0031	1

From the study findings in Table 6, performance of construction projects and project planning had a positive correlation as shown by a correlation of 0.533. It was also clear that there was a positive correlation between performance of construction projects and resource scheduling with a correlation of 0.6143. The performance of construction projects and communication had a positive correlation with a correlation value of 0.747 while a positive correlation was also found between performance of construction projects and project monitoring and evaluation with a correlation value of 0.5310.

4.2.2 Regression Analysis

The multiple regression analysis was conducted in order to determine the change in the dependent variable (i.e. performance of construction projects) because of change in the four independent variables (i.e. project planning, communication, resource scheduling, and project monitoring and evaluation).

4.3 Model Summary

The model summary was used to present the coefficient of determination, which described the extent to which the variation in the dependent variable could be explained by changes in the independent variables. It can also be expressed as the percentage of variance in the dependent variable (performance of construction projects) that is explained by all four independent variables in the study (project planning, communication, resource scheduling, and project monitoring and evaluation). The results were presented in Table 7.

Table 7
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.790 ^a	.633	.566	.50129

a. Predictors: (Constant), Time management, Material Usage Planning, Human Resource Planning, Financial Resource Planning

The four independent variables (project planning, communication, resource scheduling, and project monitoring and evaluation) contributes to 56.6% on performance of construction projects as represented by the adjusted R^2 . Subsequently, the other factors which were not considered in this study contribute to 43.4% on performance of projects. The coefficient of correlation value of 0.790 indicates that there was a positive strong correlation between independent and dependent variables.

4.4 Analysis of Variance

The study sought to establish the overall significance. The results were presented in the Table 8.

Table 8*Analysis of Variance (ANOVA)*

Source of Variation	Sum of Squares (SS)	df	Mean Square (MS)	F	Sig. (p-value)
Regression	142.771	4	35.69	49.7728	0.000
Residual (Error)	14.645	101	0.145		
Total	157.416	105			

The findings in the Table 8 indicate that the overall model was significant. The overall model was significant as shown by a calculated F statistic of 49.7728 (p-value=0.000). Thus, the critical F statistic was less than the calculated F statistics. The findings indicated that the variables: project planning, communication, resource scheduling, and project monitoring and evaluation are good predictors of performance of construction projects.

4.5 Regression Coefficients

The study coefficients of independent variables are presented in Table 9. The coefficients indicate the direction and change of dependent variable because of change in the independent variables.

Table 9*Regression Coefficients*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
Constant	1.318	1.352		1.624	0.368
Project Planning	0.568	0.320	0.173	4.343	.0287
Resource Scheduling	0.741	0.166	0.211	3.533	.0296
Communication	0.795	0.332	0.068	3.543	.0213
Project Monitoring & Evaluation	0.630	0.255	0.149	3.459	.0258

As per the SPSS generated Table 9, the equation

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \text{ becomes:}$$

$$Y = 1.318 + 0.568X_1 + 0.795X_2 + 0.630X_3 + 0.741X_4$$

Using the regression equation above and holding all factors constant (project planning, communication, resource scheduling, and project monitoring and evaluation) performance of construction projects will be 1.318. The findings in Table 9 indicate an increase in project planning will significantly increase project performance. The study concurs with a study by Ngundo and James (2018) who found that project planning had a significant positive influence in the implementation of government projects in Machakos County, in Kenya.

The results further indicate that an increase in resource scheduling will significantly lead to an increase in project performance. The study is consistent with a study by Evas (2023) who found that there was a significant and positive relationship between resource planning and project performance. The study found a positive correlation between financial resource planning (i.e. forecasting, budgeting, and plans for money) and material resource planning (i.e. order placement, planned procurement and monitoring of placed orders) and project performance. The findings in Table 9 show that an increase in communication will lead to an increase in project performance. The study findings affirms the findings of a study by Akintelu et al. (2023) who found that a project communication plan had a strong positive relationship with project delivery and success. Thus, it is recommended that project communication plan need to be in place and well monitored and controlled. The results in Table 9 also indicate that an increase in project monitoring and evaluation will lead to an increase in project performance. The study findings concur with that of Jahaf (2021) that revealed that there was a significant positive relationship between monitoring & evaluation skills and the performance of the projects.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The study aimed at finding out effect of project management practices on performance of government construction projects in Arusha, Dar es Salaam, Dodoma, Morogoro and Pwani regions, Tanzania. Based on the study findings we made the following conclusions. The study found that there is a need for government organisations and institutions to have proper project management that aims at improving performance of construction projects. The study concluded that project management positively and significantly contributes to performance of the construction projects.

The study found that resource scheduling (including effective allocation of available personnel, clear budgetary allocation for all project activities, and proper allocation of project equipment) play an influential role in the performance of construction projects. The study concludes that resource scheduling has a positive and significant effect on performance of construction projects in Tanzania. The study results indicated that project communication management had positive and significant effect on project performance in the construction industry in Tanzania. It can be concluded that when a firm has efficient communication system and proper communication management plan, it will increase chances of performing better. Finally, the study findings revealed that there was significant positive relationship between project monitoring and evaluation with the performance of the projects. It can be concluded that when a firm has monitoring and evaluation mechanism in place, it will increase the chance of rectifying deviations and hence have effective performance.

5.2 Recommendations

The study recommends that firms should have a project management plan which will be initiated by the project managers to be used as a project tool/devise in the execution and monitoring phases. It is expected that the plan will define the project's goals and objectives based on the organization's mission and vision statement. The project plan should also outline all the resource requirements for the project and identify the risks and opportunities in the project. The study also suggests that project managers should define the entire project process and create a communication matrix in project planning so that it is easy for all stakeholders to understand what is required from them. Communication plans should be considered as an important tool in construction companies in Tanzania for improving project performance. A formal communication plan should be developed to determine how stakeholder feedback and actions will be managed and improved to complete projects on time.

The study further suggests that in order for all stakeholders to feel the ownership of the project, they should be involved and consulted with the project management team at all stages of project implementation. Therefore, stakeholders should participate in project decision-making, project design and project monitoring and evaluation. The project manager should promote project ownership and stakeholder sustainability to bring about positive project performance. The study recommended that all project managers must maintain a balance between overstaffing and understaffing and make sure that they have a sufficient number of project team members. They need to have manageable amount of materials and equipment for use during project implementation/execution. The study also suggest that government entities must continually assess their financial situation in order to optimally utilize financial resource in an efficient manner.

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Factors influencing carrot production among smallholder carrot growers in Songoro Ward, Meru district council, Tanzania

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ABSTRACT

The study aims to examine the socioeconomic determinants of carrot production among smallholder carrot farmers. The present study is grounded in the Sustainable Livelihood Framework (SLF). The study adopted a cross-sectional research design with an exploratory sequential and mixed-method approach, whereby qualitative data were first collected, followed by quantitative data. A sample of 286 smallholder carrot farmers was selected using simple random sampling techniques. The qualitative data were analyzed using thematic content analysis with a constant comparison. Quantitative data were entered into the IBM Statistical Package for Social Sciences (SPSS), where descriptive statistics and inferential statistics were employed. A multiple regression model was used to assess the socioeconomic determinants of carrot yield in Meru District Council. The sample size selected is adequate for preliminary findings, but the results may not be very generalizable to other countries due to context-specific factors and socio-cultural differences. The results indicated that age, carrot income, education, household size, land sizes, and carrot farming experience were significant determinants of carrot yield at a $p < 0.05$ significance level. The study's practical significance lies in developing recommendations to enhance carrot production in the Meru District Council. Human capital and socioeconomic characteristics can make valuable contributions to carrot production and increase smallholder farmers' carrot yield. This work contributes by elaborating on how carrot production can be enhanced through the improvement of household income, creation of awareness among smallholder farmers about the potential of carrot production, use of family labor to increase crop yield, and the need for more land allocation for carrot production.

Keywords: Carrot Growers, Carrot Production, Carrot Yield, Meru District Council, Songoro Ward, Tanzania

I. INTRODUCTION

Worldwide, carrot farming represents one among the valuable vegetable (Yigezu *et al.*, 2025). The crop plays a significant role in the improving household income and improving nutrition of the household, due to its economic and dietary importance (Simon, 2021). In recent years there has been increasing demand for carrot worldwide due to its potential as it is used as a vegetable and for preparing soups, salads, stew curries and other dishes (Mall and Pate, 2024). The carrot seed also contain essential oil which is used for flavouring and perfumery (Yigezu *et al.*, 2025). According to Sewando *et al* (2022), the crop offers health benefits such as; strengthening the immune system, regulating metabolism, promoting urination, improving menstruation cycle, maintaining a healthy skin, improving vision, reducing the risk of; high blood pressure, stroke, heart disease, and some types of cancer.

In Tanzania carrot is being cultivated in various areas of rural Tanzania and serves as an important crop for food and commercial purposes among the smallholder farmers. Among others, Arusha region has the potential of supporting and accommodating the farming that is predominant in Arusha and Meru districts. The farmers in the districts have close proximity to local community markets in Arusha region. Many of the markets are predominantly found in Meru district council where farmers can access for commercial production of the crop. Further, the existence of commercial markets in regions such as Dar es Salaam, Kilimanjaro, Dodoma, and Morogoro provide incentives for farmers to improve their production which can directly affect their livelihood (Sewando *et al.*, 2022).

While carrot farming is recognized to be the engine of growth of the economy, most smallholder farmers continue to register low carrot yield (Sewando *et al.*, 2022). Likewise, despite its potential contribution to the market, it is not clearly known the factors that determine crop production by the farming households. Therefore, this study analysed the factors influencing carrot production by smallholder farmers in Meru district council, Arusha Tanzania. The findings of this study provide evidence on the carrot yield among smallholder farmers. The study contribute the efforts of the Sustainable Development Goals and Tanzania Development Vision 2025 which advocate commercialized smallholder farming to sustain and improve livelihoods.



1.1 Statement of the Problem

Recent studies have explored the challenges and opportunities, breeding, Determinants of profitability, determinants of commercialization, post-harvest losses, cost-benefit analysis and market supply determinants (Simon, 2021; Sewando et al., 2022; Djoufack *et al.*, 2024). Studies have also assessed the production efficiency and market performance of carrot and price dynamics (Osmani & Hossain, 2015). However, only few studies directly assessed factors influencing carrot production among smallholder carrot farmers, particularly employing empirical approach that consider institutional factors, demographic and socio-economic characteristics factors, market factors and technological factors (Sultan, 2016; Kyaw *et al.*, 2018; Rugebe *et al.*, 2019; Dube, 2020; Hltshwago *et al.*, 2021). Also a few empirical studies have been conducted on the determinants of smallholder farmers carrot production. Most of the previous studies focused on staple crops and other vegetable crops, leaving a gap in understanding the determinants of smallholder farmers carrot production unexplored.

1.2 Research Objectives

The objective of this study was to examine the factors influencing carrot production among smallholder carrot farmers

II. LITERATURE REVIEW

2.1 Theoretical Review

The present study is grounded in the Sustainable Livelihood Framework (SLF) which conceptualize the interaction of socio-economic characteristics influencing vulnerability, opportunities, livelihood characteristics, assets and adaptive capacity (Natarajan *et al.*, 2022; Dabla-Norris *et al.*, 2015). Sustainable Livelihood Framework (SLF) as developed by DFID also focuses on how the resources are used as an asset to improve human well-being and promoting development by considering livelihood assets, processes and structures and livelihood strategies to achieve livelihood outcomes (Wendimu *et al.*, 2016). Grounded in the Sustainable Livelihood Framework, this study characterizes determinants of carrot yield among smallholder farmers in Meru district council.

2.2 Empirical Review

Previous empirical studies have examined the determinants of crop yield. Socio-economic characteristics of smallholder, such as education level, age, and sex, are assumed to have some effects on the crop yields (Kubwimana 2020). A higher education level of farmers could possibly increase knowledge and ability, making them more reasonable and open-minded, and better evaluate the gains of the improved technology (Sennuga *et al.*, 2020). This is the basis that stimulates an individual's rational thinking, integrated with other social and economic capacities for increased crop production. As a result, farmers' education level usually has a positive impact on the decision to adopt new technology hence increase crop productivity. Gender issues have also been investigated in many studies related to the crop productivity, and different results on the roles of men and women have been found. Farm structure, including farm size, labour force, and household income, is also part of the determinants (Rugube *et al.*, 2019; Djoufack *et al.*, 2024).

In many studies, farm size or land holding of the farm household is considered an important determinant of crop yield (Panga & Lyaro, 2023). The availability of the agricultural labour force within the household may facilitate the application of technology due to liquidity constraints; the majority of households cannot easily acquire hired labour (Rugube *et al.*, 2019). The impact of the farm household income on increase in production per hectares has also been investigated, and it is usually reported that farms with higher income tend to adopt new agricultural technology more than those with lower income (Kubwimana, 2020). The studies also revealed that sex is important and positive in the improvement of crop yield due to more access to agricultural technologies because male-headed households have more interactions with extension officer when compared to female-headed households. Social and cultural norms and values give men more access and control over land and production resources.

III. METHODOLOGY

3.1 Study Area

The study was conducted in Meru District Council where four villages namely Sura, Ushili, Urisho and Songoro from Songoro Ward were purposively selected. The area was selected due to having higher number of smallholder carrot farmers (Sewando *et al.*, 2022).

3.2 Research Design

A cross-sectional research design was adopted in order to assess the factors influencing carrot production. The design enables collection of data at a single point in time and allows measurements of outcomes and exposures in the study respondents at the same time (Bernard, 2017). The design was deemed appropriate due to the fact that it is cost-

effective, less time-consuming and more information could be obtained (Omolo, 2017). Exploratory sequential research strategy was adopted with the initial phase of qualitative data collection and analysis which was followed by a phase of quantitative data collection and analysis. Exploratory research approach was adopted to integrate the results from two stages so as to expand the scope and improve the quality of the results (Courtney, 2017).

3.3 Sampling Techniques and Sample Size

The sampling unit was a household engaging in carrot production. The quantitative data collection involved a household survey whereby 286 households were involved. Sample size was estimated using a simplified formula by Yamane (1973) as cited by Israel (2013).

$$n = \frac{N}{1+N(e^2)}$$

Where

n is sample size;

N = Size of population of carrot farmers.

e is the error margin.

Thus,

$$n = \frac{1000}{1+1000(0.05^2)}$$

n= 286 respondents

To obtain an eligible sample from each of the four villages, a proportionate sampling method was used to calculate a sub-sample from each village, as proposed by Kothari (2004). The smallholder farmers participating in the study included 285 households in Sura village, 266 in Songoro, 234 in Ushili, and 215 households in Urisho village. Hence, the total sample frame for the study was 1,000 registered carrot-farming households across the four selected villages. The researcher employed proportionate sampling to determine the eligible sub-sample for each village using the following formula:

$$\text{Proportion} = \frac{\text{Cluster Sample (Location)} \times \text{Desired Sample Size}}{\text{Total population}}$$

For this study, this becomes:

Proportional Sample by using the Formula

$$\text{Proportion} = \frac{\text{Cluster Sample (Location)} \times \text{Desired Sample Size}}{\text{Total population}}$$

For this study, this becomes:

$$\begin{aligned} \text{Sura} &= \frac{285 \times 286}{1000} = 82 \text{ respondents} \\ \text{Ushili} &= \frac{234 \times 286}{1000} = 67 \text{ respondents} \\ \text{Urisho} &= \frac{215 \times 286}{1000} = 61 \text{ respondents} \\ \text{Songoro} &= \frac{266 \times 286}{1000} = 76 \text{ respondents} \end{aligned}$$

The purposive sampling was employed to get eligible participants in qualitative study in Focus Group Discussions (FGDs) and Key Informants Interviews (KIIs). Participants in FGDs and KIIs were selected based on their position, knowledge and participation in carrot value chain.

3.4 Research Instruments

The total sample frame for the study was 286 households were involved in household survey while Checklist of questions was used to collect data from four FGDs in Sura, Ushili, Songoro and Urisho villages with participants ranging from 8-10 and 6 KIIs Ward Executive Officer (WEO), four Village Executive Officers (VEOs) and Meru District Agricultural, Irrigation and Cooperative Officer (DAICO). FGDs and KIIs were conducted to get participants

views and opinion on profitability of carrot farming, distribution of land for carrot farming to different sex and age categories and land size allocated for carrot farming.

3.5 Data Analysis

Qualitative data were analyzed using content analysis whereby words were transcribed and organized into different themes based on the study objectives. On the other hands, quantitative data were entered in Statistical Package for Social Sciences (SPSS) Statistics, version 25 whereby descriptive statistics was used to determine socio-economic characteristic of smallholder carrot. Multiple Regression Model was used to assess factors influencing carrot production in Songoro ward. The dependent variable Carrot production was measured by using carrot yield in kilograms. Multiple regression model was suitable to determine the factors influencing carrot production among smallholder farmers since the dependent variable (Carrot yield) was measured as a continuous variable and it was predicted by multiple explanatory independent variables. The model had the following form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + e$$

Where:

Y = Carrot Yield in kg (Outcome variable).

$\beta_1 \dots \beta_{11}$ = estimation parameters

$X_1 \dots X_{10}$ = explanatory variables as indicated in table

β_0 = the intercept

e = Regression error term

The variable under examination, carrot production, was assessed through a carrot yield designed to gauge the extent to which socio-economic factors influenced carrot production in terms of carrot yield. The Independent variables entered in the multiple regression model were those captured during theoretical and empirical literature review.

Table 1

Measurement of Variable entered in Multiple Regression Model

Variable Definition	Unit of Measurement	Assumed Influence
X_1 = Age of the carrot farmers	Years	+
X_2 = Sex of household head	1 if male headed household, 0 if otherwise)	+
X_3 = Education of the household head	Years of schooling (measured in years)	+
X_4 = Land Size allocated for carrot	Land size (measured in acres)	+
X_5 = Household size	Number of active people in the household	+
X_6 = Market participation	1=participation and 0 =no access	+
X_7 = Carrot farming experience	Number of years in carrot farming	+
X_8 = Access to extension services	Frequency of visit by extension officer),	+
X_9 = Income from carrot	Total income from carrot production in TZS	+
X_{10} = Marital status	1 if married 0 if otherwise	+
X_{11} = Access to credit status	1 if access 0 if otherwise	+

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Socio-economic Characteristics of Smallholder Carrot Farmers

The findings on smallholder carrot farmers socio-economic characteristics in Table 2 depict that mean age was 42 years. This suggest that most of carrot farmers were young. The results suggest that carrot production is intensive activity that requires people with active age. As observed by Paparella *et al.* (2024), the level of production in carrot farming tend to increase with the optimum age group and starts to drop with an increase in Age. The Mean years of schooling was 7.2 years. The results suggest that most carrot farmers were likely to adopt new carrot varieties which fetch higher yield. This results correspond to the previous studies as reported by Sewando *et al.* (2022) who found that education had great contribution in production by smallholder farmers.

Table 2*Household's Socio-Economic Characteristics (n=286)*

Variable	Standard Deviation of the Means and Means
Age	42 (15.4)
Education	7.2 (2.4)
Household Size	5 (2.3)
Land Size	3.8 (3.7)
Frequency of extension officer visit	2.7(1.5)
Experience in carrot-farming	9.6 (7.8)
Total carrot produced in (bags)	15 (4.9)

*The number in brackets are standard deviations of the means and the number out of brackets are the means

The mean household size as presented in Table 2 was 5 household members. This implies that participating household in carrot production had enough family members to supply labour to enable them to improve carrot agronomic practices. Similar result were reported by Masere and Worth (2022) who reported that higher number of active family members were one of the predictors for crop yield among smallholder farmers. The mean land size as depicted in Table 2, was 3.8 ha. This suggest that smallholder farmer had enough land and hence they are likely to adopt new innovation introduced by extension officers hence increase their carrot production. The mean frequency of extension visit was 2.7 visits. This findings suggests that smallholder carrot farmers had at least one contact with extension officers. Studies by Pariasa and Hardana; 2023; Sultan 2016; Sennuga al., 2020) reported that households with more frequent contact with extension officers had more chances of increasing crop production due to access to market information channeled by extension officers. The mean years in carrot farming was 9.6 years. Experience in carrot farming is very important to smallholder farmers as this implies that they have wealth of experience in testing different carrot agronomic practices brought by extension officer. Previous studies by Hlatshwayo et al. 2021; Dube, 2020; Okurut et al.(2014) reported that most of farmers who adopted innovation were those who had long experience in farming of respective crop.

Table 3*Demographic Characteristics of Respondents (n=286)*

Characteristics		Frequency	Percent
Sex	Male	214	75
	Female	71	25
Access to market information	Access	180	63
	No access	105	37
Marital status	Married	205	72
	Single, Window, Separate	80	28

The results indicate that 75% of head of the household were male. This implies that most farmers who were engaging in carrot production were male as in most cases cash crops like carrot are in most cases male crop. Most of respondents were members in carrot farming association. The reasons for this is that most innovation brought by extension officers are channeled to farmers through their association. Similar results were reported in previous study by Rugube *et al.* (2019). The results further indicate that, 63% of smallholder carrot farmers had access to market information. This implies that majority of carrot farming community had access to market information which is crucial in making decision on number of acres to cultivate and type of crop to grow. This findings is consistence with previous study reported by Sennuga *et al.*(2020). On the other hands, most of the carrot farmer (72%) were married while only few (28%) were single, widow and separated.

4.1.2 Factors Influencing Carrot Production

Before conducting the multiple regression analysis, several assumptions were assessed. The Durbin-Watson's test resulted in a value of 2.023, falling within the recommended range of $0.5 < d < 2.5$, as suggested by Kutner et al. (2005). This indicates the absence of auto-correlation in the multiple regression analysis. Moreover, the model testing results indicated that the correlation coefficient (R) was 0.698, indicating that the independent variables collectively shared an association with the dependent variable, accounting for 69.8% of the variance. Additionally, the coefficient of determination (R²) was 0.589, implying that the model could explain 58.9% of the variation in the dependent variable. These findings are in line with cross-sectional data patterns as reported by Okurut et al. (2014). The Normality assumption was evaluated using the Shapiro-Wilk test, and since the dependent variable did not follow a normal distribution, it was transformed using natural logarithms. To check for collinearity or multicollinearity among the independent variables, diagnostic tests were performed. As outlined by Pallant (2011), multicollinearity occurs when

there is a linear or near-linear relationship among the explanatory variables. Tolerance and Variance Inflation Factor (VIF) tests were employed to detect multi-col-linearity. Following Pallant's (2011) guidelines, no variable had a VIF value exceeding 10, indicating that there was no evidence of multicollinearity in the study. Furthermore, the results indicated that age, education, household size, income from carrot farming, carrot farming experience, frequency of extension visit and land size were significant determinants of household carrot production, as presented in Table 4.

Table 4

Determinants of Smallholder Farmers Carrot Production (n=286)

Model	Unstandardized Coefficients	Standard Coefficients		T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	15.185	0.651		26.668	0.000		
Age	0.012*	0.006	0.167	3.124	0.002	0.529	1.891
Marital status	-0.180	0.142	-0.073	-1.411	0.181	0.789	1.268
Sex	0.087	0.132	0.024	0.565	0.587	0.832	1.215
Education	0.067*	0.022	0.151	3.051	0.002	0.687	1.545
Household size	0.108*	0.032	0.164	3.375	0.001	0.710	1.480
Carrot income	0.350*	0.118	0.132	2.880	0.004	0.804	1.423
Extension services	0.158*	0.066	0.116	2.405	0.017	0.727	1.367
Land size	0.118*	0.019	0.291	6.117	0.000	0.739	1.335
Carrot farming experience	0.655*	0.170	0.213	3.848	0.000	0.548	1.862
Market Participation	0.264	0.138	0.099	1.914	0.056	0.632	1.538
Access to credit	0.117	0.132	0.046	0.886	0.376	0.635	1.547

$R = 0.698$, $R^2 = 0.589$, Adjusted $R^2 = 0.537$, $t = 26.865$, Durbin-Watson = 2.023, $F = 22.063$, ($p=0.000$). Dependent Variable: Carrot Yield. * Significant at 5% level

The findings demonstrated that carrot farming experience had a positive and statistically significant influence on carrot production at a 5% level of significance (as indicated in Table 4). This suggests that increased experience by smallholder in carrot farming is associated with higher carrot yield. One contributing factor to this phenomenon is experience guide farmers on decision on when to plant their carrot to fetch higher price which in turn, boosts their income from carrot sales and consequently enhances their overall livelihood. This finding is in line with what was reported in FGDs in Ushili village that:

“... Carrot farming is *paying at all since we have grown it for number of years. Experience help us to make decision on when to plant carrot and when to harvest to fetch higher price...*” (FGDs in Ushili Village held on 17th May 2025).

The aforementioned findings imply that experience in carrot farming has played a significant role in improving carrot production. Key Informant Interviews (KIIs) corroborated this observation, noting that carrot farmers with more experience get higher yield since they know carrot agronomic practices which improve their carrot yield. In fact, during the KIIs, it was reported that some households actively sought additional land in neighbouring villages to expand their carrot cultivation area, with the aim of boosting household income from carrot sales. Similar studies conducted by Rugube *et al.* (2019) and Djoufack *et al.* (2024) have supported these observations. Furthermore, the age of the household head exhibited a positive and statistically significant effect on carrot yield of smallholder carrot at a 5% level of significance, as illustrated in Table 4. These findings indicate that, while keeping all other variables constant, the carrot yield increase by a one-unit increase in age leads to a $(\exp(0.012)-1)*100\%$ change in yield. In essence, older household heads tend to achieve higher yield among smallholder carrot farmers. This phenomenon can be attributed to the fact that older households typically have greater access to land and possess extensive experience in carrot farming, which, if effectively utilized, can lead to improved carrot yield. During FGDs in Urisho village, it was reported that:

“... *Most of young household heads lack land that can be used to grow different crops and therefore they are forced to rent land because it is not possible to inherit land before marriage as per Meru tradition...*” (FGDs in Urisho Village held on 12th May 2025).

These findings imply that land ownership for youth is still a challenge in Meru District Council. These results are consistent with earlier studies by Kubwimana (2020); Sennuga *et al.* (2022) and Panga and Lyaro (2023) whose study emphasized the importance of age in improving household crop yield. Additionally, household size was found to have a positive and significant influence on carrot yield at a 5% level of significance (as demonstrated in Table 4). The positive coefficient suggests that as household size increases, carrot yield also increase. The coefficient of 0.108 for household size indicates that, with all other factors held constant, carrot yield increase by 0.108 for each additional unit increase in household size. Larger household sizes contribute to family labor supply and, consequently, to improved carrot yield. A larger household size serves as a valuable asset for engaging in various economic activities within the



household. This means that smallholder carrot farmers with larger household size have more labor for both carrot farming and other income-generating activities Hlatshwayo *et al.*, (2021); (Pariasa & Hardana, 2023) and Djaoufack *et al.* (2024) also reported that households with larger family sizes are more likely to achieve higher crop yield because they can rely on a greater pool of labor for farming activities.

Furthermore, access to extension services by smallholder carrot farmers was found to be positively statistically significant at 5%, indicating a positive relationship between the farmer's access to extension services and their carrot yield. This implies that frequent visit by extension officers enable farmers to get access to carrot production support services that significantly increase carrot productivity. The results are in line with previous findings as reported by Dube (2020); Hlatshwayo *et al.* (2021); Djoufack *et al.* (2024) who found a positively and statistically significant relationship between access to extension services and agricultural productivity.

Similarly, education was identified as a positive and significant factor influencing the carrot yield of smallholder carrot farmers at a 5% level of significance (as outlined in Table 4). This is attributed to the fact that education equips households with valuable skills, better access to information, and the ability to process and apply knowledge effectively. Educated households are more likely to be aware of carrot farming agronomic practices that can lead to increased yields. Highly educated households also tend to fare better in terms of crop yields compared to those with lower levels of formal education. Low levels of education can hinder households from actively seeking ways to improve their crop yield. These findings are consistent with prior studies, as reported by Dube (2020) and Hlatshwayo *et al.* (2021) which emphasized the positive impact of education on household crop yield. Land size was identified as a positive and significant factor influencing carrot yield of smallholder carrot households at a 5% level of significance (as shown in Table 4). This suggests that larger land sizes lead to increased carrot yields. Previous studies, such as Djoufack *et al.*, (2024) have indicated that household crop yield are heavily dependent on the size of cultivated land. These results are in line with the qualitative results quoted as follows:

"...Most of carrot farmers who get better yield are those who cultivate large piece of land and due to higher carrot yield they attract buyers from different part of the region..." (FGDs in Songoro Village held on 20th May 2025).

These findings suggest that large land size aids smallholder carrot farmers in enhancing their carrot, ultimately leading to improved carrot income. These results align with earlier research conducted by Osmani and Hossaini (2015) which emphasized the pivotal role of land size in bolstering household crop yield. Furthermore, Carrot income emerged as a significant and positively influencing factor on carrot yield at a 5% significance level (as depicted in Table 4). The positive coefficient implies that larger carrot incomes are associated with improved carrot yield. With a coefficient of 0.350 for carrot income, it indicates that, while holding all other variables constant, an increase in carrot by one unit results in a carrot yield increase of 0.350 units. Larger carrot income make substantial contributions to family ability to afford carrot inputs and cater for labour charges in carrot agronomic practices and, consequently, higher carrot yield. Having a larger carrot income becomes a valuable asset when it comes to engaging in carrot production in the next farming season. This suggests that smallholder carrot farmers with larger carrot income have a more income to finance carrot production. As highlighted by Kyaw *et al.* (2018); Hlatshwayo *et al.*, (2021), households with larger incomes have a greater likelihood of achieving improved crop yield, as they can easily finance their farming activities such as labour.

Other variables like sex, marital status, and access to credit were not significant. Studies of agricultural production have indicated sex, marital status and access to credit are often found to be non-significant determinants of carrot production or farm productivity because of the prevalence of community family labor, reliance on informal financing, and the technical input-intensive nature of the crop (Yigezu *et al.*, 2025). While these factors are crucial for accessing credit or starting a farm, they may not dictate the actual output volume as much as technical factors like seed quality, fertilizer application and land size allocated for carrot production.

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

The results demonstrated that carrot production is influenced by carrot smallholder farming households socio-economic characteristics such as carrot farming experience, age, education, household size, income, land size and extension services. This factors are significant in influencing carrot yields. The implication of these factor is that household with resources endowment, human capital and institutional support are more likely to engage in production of highly marketable crops.

5.2 Recommendations

The study recommend that farmers should work together with District agricultural extension workers in order to ensure adherence to carrot agronomic practices which will increase the output per acre, hence raise their carrot yield. The other stakeholders including TAHA, TARI, MVIWATA and other vegetable production promotion NGO's should



invest efforts in promoting carrot farming which is evidenced to improve people's livelihood. More, financial institutions such as Banks and SACCOs should ensure that financial services are accessible and reliable smallholder carrot farming community to facilitate the farming processes.

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Risk management practices and project performance: Evidence from Tanzania's standard gauge railway lot one, Dar es Salaam to Morogoro

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ABSTRACT

This study evaluated the effectiveness of risk management practices on the performance of government projects in Tanzania, with a focus on the Standard Gauge Railway (SGR). Specifically, it examined how risk mitigation practices affected SGR performance. The study also assessed the influence of risk monitoring and evaluation practices on SGR performance in Tanzania. Guided by contingency theory, it employed a case study design and a mixed-methods approach. The sample included 72 purposively sampled respondents. Data were collected through questionnaires, interviews, and document analysis. Quantitative data were analyzed using descriptive and inferential statistics, while qualitative data underwent content analysis. Findings showed that effective risk management practices adopted by the Tanzania Railways Corporation (TRC) for the Standard Gauge Railway (SGR) project Lot One in Tanzania significantly enhanced project performance, leading to better quality, cost savings, and on-time completion, with a mean score above the average, ranging between 4.04 and 4.23 out of 5.0, among the effects of risk monitoring and evaluation practices and the effects of risk mitigation practices. The study concluded that proper risk management is vital for the successful execution of projects. Recommendations for the TRC to invest in ongoing training, develop a comprehensive risk management framework, and establish regular monitoring and evaluation processes. The study also emphasized the importance of strengthening communication among stakeholders and involving external experts for high-risk projects.

Keywords: Standard Gauge Railways, Risk Management Practices, Public Project, SGR Lot One, Tanzania

I. INTRODUCTION

Risk management practices in construction projects date back to the early 20th century, when formalized project management began to develop in response to the increasing complexity of construction endeavors (Fewings & Henjewe, 2019). During this time, large-scale projects such as dams, bridges, and skyscrapers required the development of structured project management methods to handle their complexity (Lafhaj et al., 2024). These formal practices provide a systematic approach to ensuring projects are completed on time, within budget, and to specifications (Menon, 2024). Today, risk management is considered a critical part of project management in the construction industry (United Nations Conference on Trade and Development, [UNCTAD] 2022). Project managers and stakeholders utilize various techniques—such as risk registers, risk workshops, and sensitivity analysis—to identify and manage risks effectively, thereby improving project outcomes (Tumuhairwe & Ahimbisibwe, 2016). A risk refers to the chance of an event occurring that could impact specific goals in unexpected or unforeseen ways (Nineka, 2024). In the United States, government projects often conduct comprehensive risk assessments and management practices to identify potential risks and develop mitigation strategies (Eom et al., 2015). Practices like detailed feasibility studies, stakeholder involvement, and advanced project management techniques contribute to project success (Matto et al., 2021). Effective risk management helps reduce delays, cost overruns, and scope creep, ensuring the timely delivery of key projects (Khamaksorn, 2016). In India, risk management approaches vary among government departments and agencies (Erick, 2022; Fredrick, 2022). Despite ongoing efforts to improve these practices, challenges such as bureaucratic delays, political interference, and corruption can hinder effective risk identification and mitigation (Wang et al., 2022). Nevertheless, there is increasing recognition of the importance of risk management in government projects, especially in sectors like infrastructure and public services (Eom et al., 2015).

In Africa, Nigeria faces significant challenges in implementing effective risk management practices in government projects, including inadequate funding, weak institutional capacity, and regulatory uncertainties (UNCTAD, 2022). The lack of robust risk management frameworks often leads to project failures, delays, and budget overruns (Fredrick, 2022). Efforts are being made to improve risk management through capacity building, adoption of best practices, and strengthening regulatory frameworks (Fewings & Henjewe, 2019). In Kenya, risk management



practices in government projects are gaining prominence, driven by factors such as increased investment in infrastructure development and public sector reforms (Gacheru, 2025). The government has introduced guidelines and frameworks for risk management, emphasizing proactive risk management practices throughout the project lifecycle (UNCTAD, 2022). It is expected that effective risk management contributes to the successful delivery of strategic projects, enhances transparency, and builds investor confidence.

Risk management Practices are essential to the success of the Standard Gauge Railway (SGR) project (UNCTAD, 2022). The SGR project is a major infrastructure endeavor that aims to modernize Tanzania's railway network in order to boost regional connections, encourage economic development, and increase transportation efficiency. The Tanzanian government can improve project performance by minimizing disruptions, allocating resources optimally, and increasing the probability of accomplishing project goals within budgetary and schedule constraints by putting strong risk management practices into place (Kisobere & Badi, 2026). Risk identification, determining risk sources that may affect procurement, risk analysis and assessment, stakeholder involvement in risk management, having clear risk management policies, and risk monitoring, control, and review are some of the best practices in risk management (Kiral, 2025). Thus, this study uses a case study of Tanzania's standard gauge railways to assess risk management practices on the performance of government projects.

1.1 Statement of the Problem

Despite the growing recognition of the importance of risk management in ensuring the successful and value-for-money implementation of government strategic projects, there is still a gap in understanding the effectiveness of these practices, particularly in relation to major infrastructure projects in Tanzania (Oyediran et al., 2026). Although significant investments have been made in the Standard Gauge Railways (SGR) project, limited empirical evidence exists on how risk management practices are implemented and their impact on project performance. Previous studies in Tanzania (Matto et al., 2021) have primarily focused on the challenges and barriers to effective risk management in the construction and renovation of healthcare facilities, such as hospitals, clinics, and health centers. Additionally, research by Zeller and Andersen (2025) assessed the level of adherence to risk management frameworks and standards in Water Supply and Sanitation Projects within the Mwanza region. However, more comprehensive empirical evidence is needed. This study, therefore, aimed to investigate the implementation of risk management practices and their impact on the performance of the government's strategic projects in Tanzania, using the SGR project as a case study.

1.2 Research Questions

- i. What are the effects of risk mitigation practices on the performance of the Standard Gauge Railways project in Tanzania?
- ii. What are the effects of risk monitoring and evaluation practices on the performance of the Standard Gauge Railways project in Tanzania?

II. LITERATURE REVIEW

2.1 Theoretical Review

The study was informed by the contingency theory developed during the early 1950's by researchers at Ohio State University, who argued that organizations normally work in an uncertain environment, so the best action by the management is to respond to external and internal situations (Merchan, 2019). Contingency theory is a management theory that suggests there is no one universal approach to managing organizations or projects, but rather the most effective approach depends on the specific circumstances (Carroll & Burton, 2012). Additionally, contingency theory stresses the importance of organizational flexibility in responding to changing environmental conditions, suggesting that organizations should be adaptable and open to change to remain competitive and successful in dynamic environments (Jia, 2025).

In the context of the Standard Gauge Railways (SGR) project in Tanzania, contingency theory suggests that the effectiveness of risk management practices depends on specific contextual factors such as project complexity, stakeholder dynamics, regulatory requirements, and environmental conditions. The theory emphasizes the need for organizations to adapt their management practices to fit the unique circumstances of the SGR project, including adapting risk management practices to address specific risks and challenges like land acquisition issues. Overall, contingency theory provides a framework for understanding how contextual factors influence the effectiveness of risk management practices on the performance of the Standard Gauge Railways in Tanzania. By recognizing the importance of context and adaptation, project managers can better align risk management practices with the specific needs and challenges of the SGR project, ultimately enhancing project performance and success.

2.2 Empirical Review

2.2.1 Risk Mitigation Practices and Performance of Construction Projects

Risk mitigation strategies are the actions or options undertaken by the management of the organization to minimize the impact of risks and optimize opportunities of the identified risks (Athumani & Bisama, 2018). For every procurement risk being identified, there must be mitigation strategies in order to minimize the likelihood of occurrences and reduce the impacts of risk if it occurs. A study conducted by Arthur et al. (2021) indicated that procurement risk mitigation practices have a positive and significant relationship with organizational performance, and therefore, the organization needs to ensure that there are appropriate procurement risk mitigation strategies, such as compliance with the preparation and implementation of annual procurement, which consequently reduces procurement risks.

A study by Mkutano and Sang (2018) sought to establish the factors affecting the effectiveness of Risk Mitigation strategies in housing construction projects in Kenya. The research objectives were; to determine the extent to which level of top management support affect effectiveness of risk management in housing construction projects, to establish the extent to which competence of project team affect effectiveness of risk management in housing construction projects, to examine the extent to which project funding affect effectiveness of risk management in housing construction projects and to establish the extent to which project risk management affect effectiveness of risk management in housing construction projects. The study established that a low level of top management support, where project management failed to develop project procedures from the initiation stage, install training programs, establish a project management office, and support quality management, affected the effectiveness of risk management in the Kibera Housing Scheme. Furthermore, Kisobere and Badi (2026) assessed the “Impact of Risk Management Strategies on Performance of Microfinance Institutions in Tanzania”. The study was conducted at FAIDIKA's head office and its branches located in Dar es Salaam and the Coast region. A sample of 57 respondents who are employees of FAIDIKA. Finally, the study discovered that there is a direct relationship between risk management and performance of microfinance institutions, as it was established that risk management practices enhance profitability through improved strategic decision making, a safe operational environment, improved loan recovery, and a strong market position.

2.2.2 Risk Monitoring and Evaluation Practices on Performance of Construction Projects

Study of Tumuhairwe and Ahimbisibwe (2016) sought to investigate the effect of monitoring and evaluation practices on organizational performance. The study revealed that risk monitoring involves the continuous process of identifying, analyzing, planning, and tracking new risks in each stage of the risk management process in order to reduce their likelihood and impact on the procurement process. Adu Gyamfi et al., (2016) conducted a study to assess the causes for delay in the completion of road construction projects in Tanzania. The study involved engineers, consultants, contractors, procurement officers, and financial officers. A convenient sampling technique was utilized to recruit 49 respondents for the sample size. It is concluded that poor specifications or designs have a direct impact on the completion of road construction projects, which can be caused by the failure of consultants to make a significant actual investigation of the site. Also, delays can be caused by improper definitions of the essence of the road project. Moreover, changes in the scope of road projects also lead to delays in the construction of road projects. Changes of scope can be caused by an increase in the distance of the road to be constructed, changes in funding, changes in the interest of the road project, and changes in the demand of the population.

Though numerous research studies elucidated the impact of risk management strategies on construction project performance, only a limited number, such as those conducted by Tumuhairwe and Ahimbisibwe (2016), Adu Gyamfi et al., (2016), and Kisobere and Badi (2026), focused on specific risk management best practices, including risk management, and continuous monitoring practices, and their effects on construction project performances across various study areas. Unfortunately, little had been conducted on how risk management techniques affected the success of government strategic projects, with a particular focus on the new SGR project, Lot One and Two, which ran from Dar es Salaam to the Morogoro region of Tanzania and from Morogoro to Dodoma. This was the area of research that needed to be filled.

III. METHODOLOGY

3.1 Study area

This study was conducted at the Tanzania Railways Corporation (TRC) due to its unique project of Standard Gauge Railway, the major government project for social development and economic growth. The role of TRC in that project is planning, implementation, and management. Therefore, it is a suitable place to secure data for this study. As the government agency, TRC interacts with various stakeholders, such as government agencies, contractors, financiers, and local communities, for executing this project. The staff and other stakeholders contracted for the project were expected to be rich in practical experience in relation to risk management practices, which is the major objective of the study.

3.2 Research Design

The study adopted a case study design. The design allows for an in-depth exploration of the specific context, processes, and dynamics of the SGR project. Researchers can delve deeply into the complexities of risk management practices and their impact on project performance, providing rich and detailed insights that may not be captured through other research designs (Utomwen, 2024). Moreover, case studies enable researchers to take a holistic perspective by considering multiple factors and stakeholders involved in the SGR project, providing a comprehensive understanding of the topic (Mchome & Nzoya, 2023). Finally, the SGR project is a complex and dynamic undertaking with various interconnected components and stakeholders.

3.3 Research Approach

The study utilized a mixed approach whereby a qualitative approach was employed to collect qualitative data from respondents' views using interviews. The quantitative approach was used to collect quantitative data from questionnaires. Employing a mixed-methods approach, which integrates both quantitative and qualitative research techniques, is highly beneficial for studying the effectiveness of risk management practices in the performance of the Standard Gauge Railways (SGR) project in Tanzania. The approach allows for a more comprehensive understanding by leveraging the strengths of both methods. Quantitative research offers numerical insights into risk management practices, such as metrics on risk occurrence, mitigation success, and project performance, while qualitative methods provide a deeper contextual understanding and stakeholder perspectives (Utomwen, 2024).

3.4 Population, Sample, and Sampling Procedure

The study population consisted of 96 stakeholders directly involved in the SGR project, which included the project management team, such as project managers, engineers, planners, risk management personnel, and public relations officers. From the population, a sample of 77 respondents was calculated through the Yamane Formula (Yamane, 1967).

3.5 Data Collection and Analysis

Data were collected using questionnaires, interviews, and documentary analysis. A total of seventy-seven self-developed questionnaires were distributed to project managers, engineers, planners, risk managers, risk officers, compliance officers, public relations managers, and public relations officers for quantitative data. For validation purposes, 15 key-informants' interviews were conducted with risk managers, procurement experts, lawyers, quantity surveyors, and engineers, and supplemented by documentary analysis for project records and reports. The quantitative data were subjected to the statistical package for the Social Sciences (SPSS) version 27.0. for Analysis of Variance (ANOVA) and Chi-square test. Out of 77 questionnaires distributed, 72 were completely filled out and collected back, which makes a response rate of 93%, which is reasonable.

Table 1

The Operation of Variables and Measurement

Variables	Sub variables	Measurement	Data source
Risk Mitigation Practices	Risk avoidance Insurance Risk tolerance Risk Reduction Cost-benefit analysis	5-point Likert scale (1 = strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree and 5 = strongly agree)	Managers Engineers Planners Risk officers Compliance officers Public relations officers
Risk monitoring and evaluation Practices	Comprehensive project records Project audit practices Review of project documents project risk trucking system Periodical reporting of project risks	5-point Likert scale (1 = strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree and 5 = strongly agree)	Managers Engineers Planners Risk officers Compliance officers Public relations officers
Performance of construction projects	Project completion in Time Quality Construction Operational Efficiency	5-point Likert scale (1 = strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree and 5 = strongly agree)	Managers Engineers Planners Risk officers Compliance officers Public relations officers



3.6 Validity and Reliability

To ensure the validity of the study, the researcher utilized content validity by seeking the opinions of experts to check for consistency and to rule out ambiguity and contradiction. This process involved a thorough evaluation of the research instrument to confirm that it adequately covered all the content relevant to the study's objectives. Experts in the field were consulted to provide feedback on the clarity, relevance, and comprehensiveness of the questions included in the questionnaire and interview guide. The researcher carefully considered their insights to refine the research instruments, ensuring that each question aligned with the specific aims of the study and not only enhanced the validity of the instruments but also ensured that the data collected would accurately reflect the perspectives and experiences of the respondents regarding risk management practices in the context of the Standard Gauge Railways project.

3.7 Reliability

Reliability refers to how consistently a method measures something. If the same result can be consistently achieved by using the same methods under the same circumstances, the measurement is considered reliable (Kothari, 2009). On that note, the test was performed using Cronbach's Alpha test. The reliability was expressed as a coefficient between 0 and 1, with higher coefficients indicating greater reliability of the test. According to Malhotra (2004), a standard minimum value of alpha of 0.6 was recommended. In this study, the researcher ensured reliability by employing the Cronbach's Alpha test. According to the findings in Table 3, the scale measuring risk mitigation practices comprised 5 items, with a Cronbach's Alpha of 0.826. This indicates strong reliability, as the higher value reflects a high level of internal consistency among the items measuring risk mitigation practices. The scale assessing risk monitoring and evaluation practices included 5 items and produced a Cronbach's Alpha of 0.76. Overall, the findings highlight the robustness of the measurement instruments used in this study, reinforcing the validity of the research conclusions.

Table 2

Reliability Test

S/N	Variables	No of Items	Cronbach (Alpha)	Description.
01.	Risk Mitigation Practices	05	.826	Reliable
02.	Risk Monitoring and Evaluation Practices	05	.761	Reliable

3.8 Ethical Consideration

The study observed research ethics and standards both during and following the data-gathering procedure. Before commencing the investigation, the researcher sought approval from the Tanzania Railways Corporation and then provided information to respondents who were allowed to decline participation in the study and to withdraw at any time, which was essential for respecting their autonomy and comfort. Furthermore, the utmost level of information privacy and confidentiality was maintained to ensure that any data collected was not disclosed without permission, safeguarding the participants' rights and fostering trust in the research process.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Demographic information of the respondents

The study examined respondent characteristics, including level of education and relevant work experience. The gender distribution among respondents was relatively balanced, with 56.9% (41) identifying as male and 43.1% (31) as female. This indicates a slight male predominance in the sample, which reflects the gender composition. The academic qualifications of the respondents were predominantly at the bachelor's level, with 34.7% (25) holding a bachelor's degree, while 27.8% (20) had postgraduate qualifications. Those with certificates comprised 23.6% (17) of the sample, and 13.9% (10) held diplomas. This indicates a highly educated workforce, which is essential for the technical and professional demands of TRC. The significant number of employees with higher education could enhance the organization's capabilities in risk management practices. By experience within TRC, 27.8% (20) of respondents had been employed for less than 5 years, and another 27.8% (20) had between 6 and 10 years of service. Additionally, 19.4% (14) had 11 to 15 years of experience, while 25.0% (18) reported over 15 years in the organization. The findings suggest a relatively young workforce in terms of tenure, with a mix of new and experienced employees. This blend can foster knowledge transfer and mentorship opportunities, benefiting organizational performance and employee development.

Finally, the distribution of employment positions indicated that 22.2% (16) of respondents were quantity surveyors, making it the largest group, followed closely by risk managers at 16.7% (12) and procurement experts at 15.3% (11). Lawyers and engineers each constituted 12.5% (9) of the sample, while other positions accounted for 20.8% (15). The varied employment positions reflect the multifaceted nature of operations at TRC, highlighting the importance of collaboration among different roles to achieve organizational objectives. This diversity in professional roles can

contribute to a holistic approach in addressing the challenges faced by TRC. The demographic characteristics of the respondents were presented in Table 3.

Table 3

Demographic Characteristics of Respondents

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	41	56.9
	Female	31	43.1
	Total	72	100
Education Level	Certificate	17	23.6
	Diploma	10	13.9
	Bachelor's Degree	25	34.7
	Postgraduate	20	27.8
	Total	72	100
Work Experience (Years)	Less than 5 years	20	27.8
	6–10 years	20	27.8
	11–15 years	14	19.4
	Above 15 years	18	25
	Total	72	100
Position	Quantity Surveyor	16	22.2
	Risk Manager	12	16.7
	Procurement Expert	11	15.3
	Lawyer	9	12.5
	Engineer	9	12.5
	Others	15	20.8
	Total	72	100

4.1.2 The Effects of Risk Mitigation Practices on the Performance of Standard Gauge Railways

Descriptive Statistical Analysis: The objective sought to examine the effects of Risk Mitigation Practices on the performance of the Standard Gauge Railway (SGR). The descriptive results in mean and standard deviation are presented in Table 4.

Table 4

The Effects of Risk Mitigation Practices on the Performance of Standard Gauge Railways

CODE	Statements	N	Minimum	Maximum	Mean	SD
RM1	TRC purchased insurance to mitigate risks in Standard Gauge Railways (SGR)	72	1.00	5.00	4.12	0.91
RM2	TRC reduces the risks of Standard Gauge Railways (SGR) through regular risk avoidance	72	1.00	5.00	4.19	0.85
RM3	TRC mitigated the risks of Standard Gauge Railways (SGR) through a risk tolerance strategy	72	1.00	5.00	4.04	0.88
RM4	TRC reduced risks through regular cost-benefit analysis	72	1.00	5.00	4.07	0.89
RM5	Our organization reduces the risks of Standard Gauge Railways (SGR) through regular cost-benefit analysis	72	1.00	5.00	4.11	0.90

The findings in Table 4 showed that risk mitigation practices were widely implemented in the Standard Gauge Railways (SGR) project. Respondents rated the statement “TRC purchased insurance to mitigate risks in Standard Gauge Railways (SGR)” with a mean of 4.12 and a standard deviation of 0.91, indicating that risk mitigation through insurance was generally agreed upon as a significant step. The relatively low standard deviation also suggests consistency in responses, implying a broad consensus among respondents on the value of insurance as a vital component of the project’s risk management strategy. To support an argument, one of the interview respondents stated that

TRC has indeed taken proactive steps to mitigate risks by purchasing insurance for the Standard Gauge Railways (SGR). The insurance acts as a financial safeguard, allowing us to address incidents more effectively without disrupting the project’s budget or timeline (Risk Manager TRC, February, 2024).

The interview results support the descriptive results on the risk mitigation practices for project performance. By having this insurance in place, TRC is in a better position to handle accidents, structural issues, or even environmental impacts that could otherwise result in heavy losses. The above findings aligned with past studies, such as Min (2024) in

a case study on the Gautrain railway project in South Africa, also highlighted insurance as a common and effective risk mitigation tool in large infrastructure projects, underscoring the need to secure financial protection against unforeseen project-related events and practices, and underscores its commitment to maintaining the project's performance and resilience.

4.2.2 Chi-Square Test on Risk Mitigation Practices

A Chi-square test was employed to assess the strength of association between risk mitigation practices and the performance of the Standard Gauge Railways (SGR) Lot One project, which spans from Dar es Salaam to Morogoro. The results revealed a robust association, with a Chi-square statistic of $\chi^2(6, N=72) = 297.812, p < .05$. This indicates a significant relationship between the implementation of risk mitigation practices and the performance outcomes of the project, underscoring the importance of effective risk management in enhancing project efficacy.

The findings suggest that as the level of risk mitigation practices increases, so performs the SGR Lot One project. This correlation highlights the critical role that risk management strategies play in addressing potential challenges and uncertainties associated with large infrastructure projects. The significant p-value confirms that the observed relationship is unlikely to have occurred by chance, thereby reinforcing the notion that well-structured risk mitigation practices can positively impact project outcomes. In addition, the strength of the association emphasizes the necessity for the Tanzania Railway Corporation (TRC) to continue prioritizing risk mitigation strategies to ensure the successful completion and operation of the SGR project.

Table 5

Chi-Square Test Statistics on Risk Mitigation Practices

Risk Mitigation Practices	Value
Chi-Square	11.07
Degrees of Freedom (df)	5
Asymptotic Significance (p-value)	.000
Cells with Expected Frequency < 5	0 (0.0%)
Minimum Expected Cell Frequency	26.1

4.2.3 A One-way ANOVA for Risk Mitigation Practices

A One-way ANOVA was conducted to assess the mean differences in Risk Mitigation Practices and their impact on the Performance of the Standard Gauge Railways (SGR). The findings were presented in Table 6.

Table 6

A One-way ANOVA for Risk Mitigation Practices

Risk Mitigation Practices and Project Completion in Time					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11.241	5	1.128	1.721	0.011
Within Groups	179.345	67	0.655		
Total	191.874	72			
Risk Mitigation Practices and Quality Construction					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.320	5	0.989	1.990	0.040
Within Groups	225.186	67	0.826		
Total	234.098	72			
Risk Mitigation Practices and Operational Efficiency					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	47.268	5	5.333	1.250	0.015
Within Groups	1112.054	72	4.895		
Total	1167.43	72			
$p < .05$					

The measurement parameters for this analysis were based on responses gathered from a Likert scale (0-5) that captured individual opinions on various risk mitigation strategies. These responses were then aggregated to calculate group means, as detailed in Table 6. The results revealed significant differences in the impact of Risk Mitigation Practices on three key performance areas of the Standard Gauge Railway (SGR) project: Project Completion in Time, Quality Construction, and Operational Efficiency. Each of these areas has been analyzed in terms of mean squares, F-

values, and significance levels ($p < .05$), revealing varying degrees of association between risk mitigation efforts and project outcomes.

The ANOVA results show a significant impact of risk mitigation practices on timely project completion, with an F-value of 1.721 and a significance level of 0.011 ($p < .05$). The sum of squares between groups is 11.241, and the mean square is 1.128. The analysis shows that risk mitigation practices significantly affect the quality of construction for the SGR project, with an F-value of 1.990 and a significance level of 0.040 ($p < .05$). The sum of squares between groups is 9.320, with a mean square of 0.989.

This finding highlights that risk management strategies play a critical role in maintaining construction quality. Regular cost-benefit analysis, for instance, likely contributes to a higher standard by ensuring that project risks are assessed in advance, allowing adjustments to be made to uphold quality. A study on the Haramain High-Speed Railway Project in Saudi Arabia (Al Harbi, 2014) similarly found that structured risk mitigation efforts, including quality control measures, improved construction standards significantly. The ANOVA results reveal a strong link between risk mitigation practices and operational efficiency, with an F-value of 1.250 and a significance level of 0.015 ($p < .05$). Here, the sum of squares between groups is 47.268, with a mean square of 5.333, indicating significant variation in operational efficiency due to risk mitigation practices. These practices ensure efficient project performance by minimizing disruptions and improving operational workflows.

4.3 The Effects of Risk monitoring and evaluation Practices on the Performance of Standard Gauge Railways

4.3.1 Descriptive Statistical Analysis

The objective examined the effects of Risk Mitigation Practices on the performance of the Standard Gauge Railway (SGR). The descriptive statistical analysis with a mean score ranging from 1.0 to 2.4 was categorized as "Strongly Disagree" or "Disagree" on a continuous Likert scale ($1.0 \leq SD < 2.4$). A mean score from 2.5 to 3.4 was classified as "Neutral" ($2.5 \leq N < 3.4$). In contrast, a variable with a mean score from 3.5 to 5.0 was classified under both "Agree" and "Strongly Agree" ($3.5 \leq A < 5.0$). See results in Table 7.

Table 7

Effects of Risk Monitoring and Evaluation Practices on Performance of Standard Gauge Railways

CODE	Statements	N	Min	Max	Mean	SD
ERM 1	TRC uses comprehensive project records to reduce risks in Standard Gauge Railways (SGR)	72	1.00	5.00	4.14	0.78
ERM 2	TRC conducts project audits to reduce risks in Standard Gauge Railways (SGR)	72	1.00	5.00	4.10	0.80
ERM 3	TRC conducts a comprehensive review of SGR documents to minimize risk	72	2.00	5.00	4.23	0.77
ERM 4	TRC tends to track SGR risks	72	1.00	5.00	4.06	0.82
ERM 5	TRC has practices of reporting SGR risks	72	1.00	5.00	4.12	0.84

The findings in Table 7 showed that various risk management practices were implemented by the Tanzania Railways Corporation (TRC) to mitigate risks associated with the Standard Gauge Railway (SGR) project from Dar es Salaam to Morogoro. Specifically, comprehensive project record-keeping (ERM5) demonstrated a high mean of 4.14 and a standard deviation of 0.78, indicating consistency among respondents in recognizing the effectiveness of thorough record management as a risk reduction strategy. To support an argument, one of the interview respondents stated that

"Our approach at TRC has always been to maintain comprehensive project records for the Standard Gauge Railway. By doing this, we make sure that no detail is overlooked, which is crucial for risk reduction (Quantity Surveyor TRC, February, 2024).

The interview results verify the descriptive results about the SGR record management as a means to reduce risk and improve project performance. A similar strategy was observed in the Marmaray Rail Project in Turkey, where extensive project documentation was integral to minimizing operational risks and delays (Çolakoğlu, 2024). Additionally, project audits (ERM2) scored a mean of 4.10 with a standard deviation of 0.80, reflecting respondents' agreement that audits play a crucial role in maintaining project integrity and identifying risks proactively. Regular audits provide an external verification process that can uncover areas of improvement, leading to better project alignment with risk management goals. In addition to the findings, one of the interview respondents stated that

"Conducting project audits and project documents review regularly allows us to stay ahead of any potential issues within the SGR project. These practices serve as checkpoints, giving us a detailed look into how different phases of the project are performing in terms of risk." (Engineer TRC February, 2024).

The interview results support the descriptive results on project audit and project documents review as risk monitoring and evaluation strategies. The approach concurs with the practice in the East Coast Rail Link (ECRL) Project

in Malaysia, where audit processes were pivotal in identifying and managing risk factors during construction phases (Aisiang, 2024). About the project document reviews, the measure concurs with the Gautrain Rapid Rail Link Project in South Africa, rigorous document reviews were fundamental to identifying gaps in risk management plans, ensuring smoother project implementation (Phiri, 2022), and the China-Pakistan Economic Corridor (CPEC) Railway adopted the same in addressing issues proactively and maintaining project flow (Khan, 2022).

4.3.2 Chi-Square Test on Monitoring and Evaluation Practices

A Chi-square test was conducted to assess the strength of association between monitoring and evaluation practices and the performance of the Standard Gauge Railways. The results indicated a strong association, with a Chi-square value of $\chi^2(5, N=72) = 280.471$, and a significance level of $p < .05$. These findings, summarized in Table 8, suggest that effective monitoring and evaluation practices are significantly linked to improved performance outcomes for the Standard Gauge Railways.

Table 8

Chi-Square Test Statistics on Monitoring and Evaluation Practices

	Monitoring and Evaluation Practices
Chi-Square	11.07 ^a
df	5
Asymp. Sig.	.000
a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 21.8. $p < .05$	

4.3.3 One-way ANOVA for Monitoring and Evaluation Practices

A One-way ANOVA was conducted to examine the mean differences between the measurement parameters of monitoring and evaluation practices and the performance of the Standard Gauge Railways. The measurement parameters were derived from responses to individual questions on a Likert scale (0-5), which were aggregated to calculate a group mean. The results of this analysis are presented in Table 9.

Table 9

One-way ANOVA for Monitoring and Evaluation Practices

Monitoring and Evaluation Practices and Project Completion in Time					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	20.98	5	1.888	2.248	0.035
Within Groups	169.778	67	0.540		
Total	190.759	72			
Monitoring and Evaluation Practices and Quality Construction					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13.539	5	1.163	1.678	0.023
Within Groups	214.882	67	0.792		
Total	228.421	72			
Monitoring and Evaluation Practices and Operational Efficiency					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	49.321	5	4.593	0.795	0.037
Within Groups	1117.629	67	4.490		
Total	1166.95	72			
$p < .05$					

The analysis of variance (ANOVA) results in Table 9 shows significant associations between monitoring and evaluation (M&E) practices and various performance aspects of the Standard Gauge Railways (SGR) project, including project completion in time, quality of construction, and operational efficiency. The findings for each performance aspect are as follows: The ANOVA results indicate a statistically significant relationship between M&E practices and timely project completion, with $F(11,249) = 2.248$ and $p = 0.035$. The sum of squares between groups is 20.98, with a mean square of 1.888, while the sum of squares within groups is 169.778, with a mean square of 0.540. These findings imply that M&E practices are positively associated with the timely completion of the SGR project. Effective monitoring and



evaluation practices likely help in identifying and addressing delays, facilitating adherence to project timelines, a result echoed by studies on the Gautrain railway project in South Africa, which demonstrated similar improvements in scheduling due to robust M&E processes (Phiri, 2022).

4.4 The Performance of Standard Gauge Railways

4.4.1 Descriptive Statistical Analysis

The study assessed the performance of the Standard Gauge Railway (SGR) Lot One project, spanning from Dar es Salaam to Morogoro, to gauge its effectiveness and efficiency in meeting projected benchmarks. This evaluation was crucial because the SGR project represents a significant infrastructural investment intended to enhance regional connectivity, economic growth, and transportation efficiency within Tanzania. Given its strategic importance, understanding the extent of the project's performance helps in identifying areas of success as well as those needing improvement, which can inform decision-making for future infrastructure initiatives. By providing insights into these aspects, the study contributes valuable knowledge that can guide the management of similar projects within the region.

To achieve this, the study employed descriptive statistical analysis based on the information collected from respondents who participated in a survey designed to gauge their perceptions on this topic. A variable with a mean score ranging from 1.0 to 2.4 was categorized as "Strongly Disagree" or "Disagree" on a continuous Likert scale ($1.0 \leq SD < 2.4$). A mean score from 2.5 to 3.4 was classified as "Neutral" ($2.5 \leq N < 3.4$). In contrast, a variable with a mean score from 3.5 to 5.0 was classified under both "Agree" and "Strongly Agree" ($3.5 \leq A < 5.0$). See results in Table 10.

Table 10

Performance of the Standard Gauge Railway (SGR)

CODE	Statements	N	Min	Max	Mean	SD
PS01	SGR quality has improved through effective risk management practices	72	1.00	4.00	4.16	0.73
PS02	The cost of SGR projects has been saved through effective risk management practices	72	2.00	5.00	4.10	0.82
PS03	SGR projects are completed on time	72	3.00	5.00	4.19	0.75

The findings in Table 10 indicate that the Standard Gauge Railway (SGR) quality has notably improved through effective risk management practices, with a mean score of 4.16 and a standard deviation of 0.73. This suggests a strong consensus among respondents that risk management is positively impacting the quality of the SGR project. The relatively low standard deviation further implies that there is minimal variation in the responses, indicating that most respondents agree on the effectiveness of these practices. This aligns with existing literature, such as the study by Barde and Barde (2012), which examined the Guangzhou–Shenzhen–Hong Kong Express Rail Link project in China, highlighting that robust risk management strategies significantly enhance project quality by proactively addressing potential challenges.

Additionally, the data reveals that SGR projects have realized cost savings through effective risk management practices, reflected in a mean of 4.10 and a standard deviation of 0.82. The positive perception of cost savings suggests that the implementation of risk management measures is not only improving quality but also optimizing financial resources allocated to the project. Furthermore, the study indicates that SGR projects are completed promptly, with a mean score of 4.19 and a standard deviation of 0.75. This high mean reflects a strong belief among participants that effective risk management contributes to adherence to timelines and project schedules. Timeliness is a critical aspect of project success. The consistent results across these three key metrics—quality improvement, cost savings, and timely completion—imply that the integration of effective risk management practices into the SGR project is essential for achieving overall project success. This underscores the necessity for project managers to prioritize risk management as a strategic tool in the execution of infrastructure projects.

4.2. Discussion

4.2.1 The Effects of Risk Mitigation Practices on Performance of Standard Gauge Railways

The study's findings indicate that risk mitigation practices have a significant positive effect on the performance of the Standard Gauge Railways (SGR) Lot One project, extending from Dar es Salaam to Morogoro. Risk mitigation practices involve proactive strategies to minimize or eliminate identified risks, leading to improved project outcomes. This aligns with the findings of Yuan (2023), who examined the Abuja-Kaduna railway project in Nigeria, concluding that effective risk mitigation led to cost savings and enhanced project timelines. These results support the principles of Contingency Theory, which posits that organizations need to develop tailored responses to environmental uncertainties to ensure project success.

The data from the SGR project demonstrates that effective risk mitigation practices contribute to critical performance metrics, including project quality, cost management, and schedule adherence. Implementing preventive

measures allows project teams to handle potential challenges proactively, thereby reducing the likelihood of project delays or budget overruns. This finding aligns with Adoh (2019) research on the Addis Ababa Light Rail project in Ethiopia, which found that projects with well-developed risk mitigation practices experienced smoother execution and fewer interruptions. This relationship resonates with Systems Theory, emphasizing the importance of interconnectedness in project components to achieve seamless performance.

In addition, risk mitigation practices foster resilience within the project team, equipping them to better manage unexpected changes. For example, by establishing contingency plans and risk response strategies, the SGR project team is better positioned to address sudden disruptions without compromising quality or operational efficiency. A study by Krüger et al., (2021) on the Dar es Salaam Rapid Transit (DART) project also highlighted that structured risk mitigation practices resulted in operational stability and timely project delivery. This is consistent with the Resource-Based View (RBV) theory, which suggests that strategic resources, such as skilled risk management practices, are essential for sustained project performance.

Effective risk mitigation practices also improve stakeholder confidence and investment interest. For example, project teams that can demonstrate active risk management attract more support from stakeholders who see reduced risk as an indicator of project viability and stability. Keys (2024) illustrated this in their study on the Melbourne Metro Tunnel project in Australia, where visible risk mitigation efforts boosted investor confidence and stakeholder satisfaction. This finding aligns with Stakeholder Theory, which underscores the value of managing project risks to build trust and secure ongoing support from project stakeholders.

4.2.2 The Effects of Risk Monitoring and Evaluation Practices on Performance of Standard Gauge Railways

The analysis of risk monitoring and evaluation practices highlights their significant impact on the performance of the Standard Gauge Railways (SGR) Lot One project from Dar es Salaam to Morogoro. Effective monitoring and evaluation (M&E) practices ensure that identified risks are continuously tracked and assessed, enabling project teams to make timely adjustments. This finding aligns with Kwafo (2021), who examined the Ghana Eastern Corridor rail project and concluded that ongoing M&E practices allow for better risk response and mitigation, reducing delays and cost overruns. This connection reflects the Control Theory, which emphasizes that continuous feedback and adjustment are essential for managing risks in dynamic projects.

The study findings indicate that a proactive M&E approach enhances several performance metrics, including adherence to budget, project quality, and completion timelines. The high mean values for risk monitoring practices in this study suggest that respondents perceive M&E practices as critical for achieving project objectives. Supporting this perspective, a study by Oluchukwu and Pillah (2025) on the Nigerian Kaduna-Abuja railway project found that projects with structured risk M&E practices were more likely to complete on time and within budget. This aligns with the Project Management Body of Knowledge framework, which underscores the importance of monitoring and controlling processes in managing project risks effectively (Chadee et al., 2025)

Furthermore, effective M&E practices contribute to continuous improvement within project teams, as regular risk assessments reveal areas for potential enhancements. This aspect aligns with the findings of Jalil (2023), who studied the impact of M&E practices on the Kuala Lumpur–Singapore high-speed rail project. Their study demonstrated that systematic risk evaluation helped project teams refine their processes, which contributed to enhanced operational efficiency. This finding resonates with Continuous Improvement Theory, where iterative risk evaluations lead to progressive improvements in project practices and outcomes.

Risk monitoring and evaluation practices also foster transparency and accountability, strengthening stakeholder confidence in project management. A study by Wang et al. (2022) on the Beijing–Shanghai high-speed railway project found that frequent M&E reporting increased stakeholder trust, as project progress and risk-handling practices were communicated openly. This aspect of risk management supports the Agency Theory, which posits that effective communication and transparency help align stakeholders' expectations and reduce conflicts in project settings.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The study concludes that the effectiveness of risk management practices—specifically, risk identification, mitigation, monitoring, and evaluation—has a substantial impact on the performance of strategic government projects, as evidenced by the Standard Gauge Railway (SGR) Lot One project from Dar es Salaam to Morogoro. Effective risk identification allows project teams to proactively recognize potential issues, enabling timely responses that prevent costly disruptions. The study further concludes that well-implemented risk mitigation strategies help streamline project timelines and reduce expenditures by addressing foreseeable obstacles before they escalate.

Moreover, the findings emphasize the importance of ongoing risk monitoring and evaluation. These practices not only ensure that emerging risks are managed promptly but also foster a culture of accountability and transparency,

thereby building stakeholder confidence. The positive correlations observed between these risk management practices and project performance suggest that adopting a comprehensive approach to risk management is crucial for achieving project objectives within expected budgets and timeframes. Overall, this study reinforces the view that robust risk management is essential for the successful completion of large-scale infrastructure projects. The conclusions align with both Contingency Theory, which advocates for adaptive strategies in dynamic project environments, and System Theory, which emphasizes the need for a holistic approach to manage interdependencies within complex projects. As such, the study recommends that government and project managers consistently integrate risk management practices into project planning and execution to enhance the success and sustainability of strategic infrastructure projects.

5.2 Recommendations

Based on the findings, the following recommendations are proposed for the Tanzania Railways Corporation (TRC) and relevant stakeholders to strengthen the effectiveness of risk management practices and improve the performance of strategic infrastructure projects like the Standard Gauge Railway (SGR). Equipping project managers and other relevant personnel with specialized training in risk management frameworks would empower them with the skills necessary to anticipate potential risks early in the project. Establishing a standardized risk management framework tailored to the specific needs of TRC's large-scale railway projects is essential for maintaining a structured approach to risk handling. Adoption of a proactive approach to risk monitoring and evaluation by establishing scheduled intervals for assessing risks throughout the entire project lifecycle. The establishment of an effective risk management relies heavily on strong communication and reporting mechanisms to facilitate the timely sharing of critical risk-related information. TRC should work to enhance communication channels between its project teams, contractors, and other key stakeholders, ensuring that all parties are well-informed and able to collaborate seamlessly.

A structured reporting system could be implemented to standardize how risks are identified, documented, and escalated, allowing teams to respond more effectively. This system would ensure that risks are escalated to the appropriate level of management swiftly, allowing for prompt decision-making and support where necessary. Furthermore, regular risk briefings and cross-departmental meetings could be introduced to foster transparency and alignment among stakeholders, reducing the chances of information silos. This enhanced communication structure would not only improve project efficiency but also foster a collaborative environment, where team members feel empowered to report and respond to risks as they arise. Through a well-coordinated communication and reporting framework, TRC can mitigate project delays and quality issues effectively. Further study may investigate the effectiveness of risk management practices in road construction projects in Tanzania, which are coordinated by the Tanzania Roads Agency.

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Microcredit firms and their influence on women's entrepreneurship in Tanzania: The case of Mwanza City Council

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ABSTRACT

This study examined the impact of microfinance institutions on women's entrepreneurship development in Mwanza City Council, Tanzania. Specifically, it aimed to determine whether access to credit was an enabling factor for women entrepreneurs, investigated the economic growth effects of high microcredit loan interest rates, and explored the impact of microcredit loan recovery mechanisms on female entrepreneurs. According to Fermin's theory, this research employed an explanatory design with a quantitative approach. Up to 90 women microfinance clients participated in the study. Data were collected through questionnaires and analysed using SPSS software. Correlation analysis revealed a significant positive relationship between loan availability and women's entrepreneurship ($r = 0.790$, $p < 0.01$), while loan interest rate ($r = 0.326$, $p = 0.002$) and loan recovery mechanisms ($r = 0.315$, $p = 0.003$) showed slight positive correlations. Regression analysis indicated that when women's entrepreneurship was the dependent variable and loan availability the independent variable ($\beta = 0.712$, $p < 0.001$), there was a significant relationship. In contrast, loan interest rate ($\beta = -0.041$, $p = 0.509$) and loan recovery mechanisms ($\beta = 0.048$, $p = 0.416$) were not significant predictors. The model explained 62.77% of the variation in female entrepreneurship ($R^2 = 0.627$), and ANOVA confirmed that these results were statistically significant beyond chance ($F = 48.196$, $p < 0.001$). The findings underscore the importance of improving credit access and increasing women's participation in both government and microcredit programs to enhance transparency and support women's entrepreneurial success. The practical implication of this study is to influence the development of gender-inclusive credit policies in Tanzania. This could help eliminate business and income inequalities faced by women and strengthen gender-inclusive credit frameworks. The study also recommends implementing gender-sensitive credit policies with flexible collateral requirements, ensuring transparency through independent monitoring, and mandating women's representation in policymaking committees to promote gender equality and support women's entrepreneurship and participation in governance.

Keywords: Microcredit, Loan Interest, Loan Recovery, Loan Accessibility, Tanzania, Women Entrepreneurship

I. INTRODUCTION

Microcredit companies, or microfinance institutions (MFIs), have become the key agents for providing financial services to people who cannot get banking services from traditional banks, especially in countries like Tanzania, where access to credit still remains a huge barrier to entrepreneurship. Humans have relied on food and their own sweat to make ends meet. It's only recently that people at the very bottom were given credit other than what was left over from a meal. Microcredit, based on the model of the Grameen Bank developed by Muhammad Yunus in Bangladesh, extends finances to small-business owners who have low incomes (Hasan, 2010). This enables these shopkeepers to build up or extend their business endeavors, so they can start something of their own (Hasan, 2022). In Tanzania, women represent both far larger numbers (and ever-increasing proportions as well) of people needing this service. This is because they are currently caught up with problems relating to the system, which include limited collateral, discriminatory lending policies, and no admission to traditional financial markets (Mligo et al., 2025). Microcredit providers met these needs for credit in two ways. One was by offering loans, savings, and training programmes that were women-specific. This is not only to improve the financial literacy of women but also to help enhance management practices in small businesses. The result is better performance and sustainability overall (Alshagawi & Mabkhot, 2024). Microcredit programs typically do more than provide financial services; offering solutions to myriad problems faced by, for example, single mothers who cannot afford daycare during the day (Dunsch, 2022).

The basic goal of their organization is to incorporate capacity-building initiatives in marketing, finance, and entrepreneurship that can provide women with practical skills and the wherewithal to be active in household decision-making as well as community programming, and thus reshape gender relations. It works to enable people's liberation Supuk (2023). If nothing else, the success of microcredit in Bangladesh should have a lasting impact: it prompted similar



experiments in the United States, where community development financial institutions (CDFIs) provide microcredit to marginalized groups. In addition to helping them get money they otherwise wouldn't be able to access on their own, these institutions offer what Alexander has called "Lending Without Lines"—not only the capital but mentorship and connection opportunities so crucial for sustaining (Dunsch, 2022). In Africa, microcredit has become more and more popular in recent years. MFIs focus on women's financial inclusion and alleviation of poverty. Thus, soon the continent will have its Daccor Fairy Tale along with India's (Magufuli et al., 2024). A particularly vivid one is Tanzania, where microcredit companies have become plush replacements for traditional banks, catering to women's requirements. They appeal to two of her main constraints. In the process, these women are also being promoted towards a high degree of self-reliance and confidence Kimaro (2023).

The impact of microcredit is not uniform. Some women derogate themselves from the status quo by getting involved in family businesses and financing. In the Mwanza City Council area, women who are heavily dependent upon microcredit fail to extricate themselves from their predicament. In these circumstances, it is questionable how effective the MFIs are and what should be done by the Government to have them work (Karna, 2021). The International Fund for Agricultural Development (IFAD) observes that while women borrowing microcredit often see gradual progress to sustainable economic independence and social credit, these results do not always follow (Kimaro, 2023). A major obstacle is the requirement for collateral that makes many women ineligible, diffident, and despairing; while lending institutions are also known to discriminate against them as clients (Mrema & Kinyondo, 2024). Consequently, these businesses provide another path for women entrepreneurs, but not one that guarantees full support in getting past the structural obstacles they face. Furthermore, the effectiveness of the microlending industry in Tanzania is determined by a policy and regulation environment that governs financial institutions. While policies to promote financial inclusion stimulate the growth of MFIs, those in power do not always have adequate provisions for women (Kimaro, 2023) argues that suitable measures for women should be thought about including taking on collateral requirements and discriminatory practices, as well as designing regulations that are strategies used by the government to both expand access for all deserving borrowers while at the same time protecting against undue exploitation. The effect of microcredit in Mwanza on women's entrepreneurship must therefore be explored within a more comprehensive framework, as (Mberwa, 2024). has pointed out. Microcredit alone does not guarantee their empowerment, but it should form an integral part of broad-based development strategies that consider all aspects. In practical terms, this means MFIs should expand to include comprehensive programs that foster entrepreneurial resilience (Vossenbergh, 2023): training in financial management, marketing, and digital literacy, for instance, while collaborative relationships with government departments and NGOs can create supportive environments or networks that throw the gains of microcredit into sharper relief. Ultimately, microcredit firms in the Mwanza City Council are a significant support to women's entrepreneurship Supuk (2023). It provides financial services that traditional banks left out, but its impact has so far been uneven and conditional upon adjustments in the total system.

This research suggests that there is, in fact, a crucial need for target policies and interventions (Babeiya, 2024). Where women's special problems in obtaining finance are dealt with specifically, then enterprise will prosper, and women's economic empowerment will naturally follow. Gender equality, economic growth, and social development will all benefit from such an approach (Lubinza et al., 2024). By probing the role of microcredit in Mwanza, policymakers and those stakeholders concerned with development can formulate strategies to ensure the goals of microfinance come true; it becomes a vehicle for emancipation from poverty (Muhuthia, 2023). Loans given by microcredit make an initial breakthrough in women's lives. However, their real potential can be developed only if comprehensive contextual solutions are pursued as financial services and development projects are integrated in model endeavors that transcend convention and incorporate national development. Women entrepreneurs of Mwanza alike shall then succeed (Moh'd, 2023).

1.1 Research Questions

- i. How do the microcredit loan recovery mechanisms affect women's entrepreneurship development?
- ii. What is the effect of microcredit loan interest rates on entrepreneurship growth?
- iii. How does credit accessibility affect women's entrepreneurship operations?

II. LITERATURE REVIEW

2.1. Theoretical Review

2.1.1 Feminist Theory and Entrepreneurship

Feminist theory, a critical segment of social theory, provides a lens through which issues of political, social, and economic rights can be examined (Greer & Greene, 2000). It is particularly concerned with gender and class dynamics (Grosser & Moon, 2019). This puts into focus an aspect often overlooked in research on entrepreneurship, how our societal structures and norms serve to maintain the difference between men and women in economic placement.



Mutesi et al., (2025) argues that any methodology for studying women's entrepreneurship must take the dual nature of women entrepreneurs' professional and family lives into account, as the two are interconnected and form a network that brings together work with family and social relationships. This point emphasizes the interrelationship between their roles and responsibilities, which directly influences women's entrepreneurial experience.

Socio-liberal feminist theories establish as a norm that men and women differ in their economic success. This is often due to broader sociocultural factors rather than individual capabilities. Ward et al., (2019) found only marginal differences in male and female entrepreneurs' eagerness and educational levels, implying that gender-differentiated tendencies in entrepreneurship result from structural inequalities rather than from some intrinsic deficiency. This underscores the need to look at women entrepreneurs' experiences through a feminist lens that takes into account barriers.

Russell-Bennett and Dann (2000), employing a feminist perspective, investigated the learning experiences of business owners in Australia and discovered significant gender-based findings. Men were more likely to engage in industries traditionally associated with women, while women tended to engage in fewer diverse entrepreneurship experiences and limited involvement with multiple start-ups. Russell-Bennett also identified differences in learning style: women favored varied sources of learning, while men received more benefit from experiential learning following setbacks. These findings argue for a theoretical frame of thinking, one that integrates feminist theory with entrepreneurship and sees the particular problems and experiences women face within business environments.

A feminist geography perspective can add to this discussion by looking at how place *Ge* is a gendered phenomenon. The geographical context is a critical determinant of where entrepreneurial opportunities exist--indeed, gender-mediated relations and entrepreneurial activities are always embedded in specific social and economic conditions. The upshot is that women's ways of doing entrepreneurship depend on the context of where they are: local practices, resource systems, and institutional structures form what kind of enterprise women are allowed (or able) to set up (Metcalf et al., 2022).

Much of the feminist literature on entrepreneurship emphasizes the connections among social structures, business ownership, organizational composition, and enterprise types. Feminist scholars assert that women have historically been excluded from entrepreneurial activities, and they advocate for recognizing entrepreneurship as a gendered practice. This involves examining how societal norms and organizational structures foster or hinder women's participation in the entrepreneurial ecosystem. Vossenber (2023) identifies financial exclusion as a gendered issue, noting that inadequate capacity in maintaining robust accounting systems within microcredit organizations poses risks such as delinquency and credit defaults. Many microcredit firms lack competent staff for accounting functions, largely due to fears of incurring high administrative costs, which negatively impacts their overall revenue and effectiveness.

2.1.2 Financial Exclusion and Gender

It's not just an economic issue; financial exclusion is also inseparably linked with gender dynamics. For example, women often face specific barriers in accessing finance, such as social prejudice, lack of collateral requirements, and financial illiteracy due to limited education opportunities. Discriminatory lending policy against females only serves to perpetuate these problems (Demirgüç-Kunt et al., 2013). These obstacles prevent women from obtaining credit and keep their business aspirations small, making it virtually impossible to break a cycle of disempowerment in which they are effectively excluded from the economic mainstream altogether. The gendered nature of financial exclusion is reflected in several ways. For example, women have far fewer resources, such as credit records or collateral assets, and face distinct obstacles in securing traditional loans. Thus, they are particularly hard hit when it comes time to put up money for a business start-up (Moh'd, 2023).

Moreover, financial institutions themselves may harbor a systematic prejudice against women and make their way manifest in the form of more rigorous lending conditions for female clients. Finally, as alluded to in earlier discussion points on microcredit's equity impact, the design of financial products often fails to take women's unique circumstances into account, for example, juggling competing professional obligations with those of a mother or wife at home (Mberwa, 2024). In this research, the aim is to uncover the systemic obstacles women encounter during their business endeavors by putting this situation in a framework of feminist thought. Viewing financial exclusion as gender minus discriminations which burden women fills an important conceptual gap. By focusing on women entrepreneurs, understanding how financial exclusion works among them can be a rational basis for policy-making and intervention Mrindoko and Pastory (2022). That way, finance systems become fairer to female entrepreneurs; micro-credit programs and new financial services contribute meaningfully towards women's empowerment if done properly, to reduce poverty and facilitate inclusive economic development. Feminist theory will be the theoretical framework from which to look at women's entrepreneurship in Mwanza. This approach should help clarify where and how the micro-credit companies are part of the problem, rather than the solution (Tariq & Bhat, 2020).



2.2 Empirical Review

2.2.1 Effects of Microcredit Loan Recovery Mechanisms on Women's Entrepreneurship Development

A detailed analysis of these studies provides a more complete picture of the relationship between microcredit and business development, which includes some understanding regarding how MFIs have fared in helping entrepreneurs, as well as the remaining difficulties these institutions face. A comparison of these findings shows regular patterns, a few contradictions, and a sum of contextual information that is applicable specifically to Tanzania. For example, Mohamed (2024) found that it did not improve loan recovery rates, in contrast to their expectation of homogeneous risk exposure within lending groups; however, social cohesion significantly enhanced loan recovery performance. This stands in contrast to the usual assumption that if the borrowers are similar, their default rate should be low. Instead, it suggests that social and relational dynamics within a group are more important than risk homogeneity itself. In addition, broader evidence provided by Ademola (2024) stressed how important social cohesion and training are to better one's own repayment performance while reducing the overall risks in group lending.

2.2.2 Effect of Microcredit Loan Interest Rates on Entrepreneurship Growth

Similarly, yet another recurring theme involves the challenge posed by high interest rates. Gayatri (2021) points out that MFIs are offered little chance to secure capital at an acceptable cost from unaided external sources; (Muhuthia, 2023) suggested that the government intervene so as to lower loan rates for MFIs. Against this background, (Mrindoko & Pastory, 2022) must have found that in rural Tanzania, MFIs are short of capital., their own savings are little, and staff are inexperienced – quite otherwise, how can they offer services at an affordable price and no substitute for them economically either (Lubinza et al., 2024). Indeed, a contradiction surrounds the question of whether similar risk exposure among borrowers within lending groups can effectively improve loan recovery rates. They found that it did not improve loan recovery rates, in contrast to their expectation of homogeneous risk exposure within lending groups; however, social cohesion significantly enhanced loan recovery performance.

2.2.3 Effect of Credit Accessibility on Women's Entrepreneurship Operations

Several studies demonstrate in a consistent way that credit availability raises entrepreneurial output. For example, Emin and James (2021) found that businesses turned in higher returns when granted credit. At the same time, with the help of business training and advice, these levels for their enterprises were lifted even further. This is in line with the broader evidence provided (Lubinza et al., 2024) who again stressed how important social cohesion and training are to better one's own repayment performance while reducing the overall risks in group lending.

The Tanzanian context has its unique challenges, which add to the difficulties faced by all MFIs. In the eyes of Mrindoko and Pastory (2022) Limitations like aligning small client bases and low saving capacities, plus young, inexperienced employees, ruin opportunities for efficient service delivery. Nonperformance can be defined as hearing yet refusal to accept a loan. SACCOS have been unable to establish sound accounting systems. This creates conditions for default and symbolizes a deeper crisis in institutional capacity. Karna (2021) bankrolled this finding. Credit availability is important, with firms receiving loans and training being prone to do significantly better than those without access to finance. But this advantage can be highly compromised by infrastructure difficulties, such as excessive transport fees (Islam, 2022): transaction costs during credit acquisition and distribution are thereby augmented. The evidence shows that credit access and training can heighten entrepreneurial performance. But systemic constraints like high interest rates, poor infrastructure, and poor institutional capacity also limit the effect of microcredit. Little consensus is achieved on issues regarding the method of repayment performance, whether social solidarity or risk homogeneity guarantees success (Mwacha et al., 2026).

Moreover, in institutional capacity, it has already been pointed out that financial transparency indexes obtained in settings of abundant resources may not have any relevance in resource-poor environments. Comparative analysis demonstrates that while microcredit potentially makes women entrepreneurs more successful and improves the performance of their businesses, the results of this success are conditioned by various strongly emergent circumstances (URT, 2025). In Tanzania, where it appears that the structural weaknesses of MFIs and SACCOS in particular, as well as high transaction costs plus a poor institutional capacity, serve to dilute the benefits of microfinance, this result is significant. Meeting these challenges requires an intervention that is tailored to fit the circumstances, including governmental promotion of lower interest rates, capacity-building for MFIs, and adjustments in infrastructure to reduce transaction costs (Mwacha et al., 2026).

III. METHODOLOGY

An explanatory research design was employed in the study to model the impact of a microcredit firm on entrepreneurial development under a general framework; only the sample was selected purposively to cover the blank. The sample included 80 female employees from microcredit firms or companies, and entrepreneurs based in Beijing

who are their loan beneficiaries. A well-structured questionnaire was used to collect both qualitative and quantitative primary data. Data was solely from written records and was analyzed through SPSS software, and regression models were sought. A pilot test was carried out to check the internal consistency of the measurement. Reliability tests the internal consistency of the items in a scale and ensures that they all measure the same construct. The reliability of the measurement instrument was checked using Cronbach's alpha in SPSS 26. Known-range reliability coefficients, from 0.00 to 1.00, show that higher coefficients are more reliable (Blumberg et al., 2014). As can be seen from Table 1, all latent variables have Cronbach's alpha values exceeding 0.7, which surpasses the 0.7 minimum level required.

This research was purely a social survey and did not carry out any experimental work on human subjects. Therefore, it was necessary to obtain no more than the permission of the respondents. The purpose of the study was explained to all participants, and they were asked to sign a verbal consent before filling out questionnaires. A code was put at the top of each form according to each person's identification, rather than recording names, ensuring the confidentiality of information provided.

IV. FINDINGS & DISCUSSION

4.1 Findings

The findings of this study provide critical insights into the influence of microcredit firms on women's entrepreneurship development in Mwanza City Council. The response rate was adequate, with questionnaires distributed to both women entrepreneurs and microcredit firm operators, ensuring that perspectives from both sides of the financial relationship were captured.

Table 1

Reliability Statistics

Cronbach's Alpha	N of Items
.769	4

The Table 1 displayed the reliability of instrument employed in this study to measure internal consistency and stability, the alpha value that we obtained was 0.769, which indicates that this instrument performed very well for detecting the various variables or concepts of our study, following those procedures. When a survey is both internally consistent and reliable it strengthens whatever results come out and gives us more confidence in any generalizations made.

Table 2

Descriptive Statistics Table

	Mean	Std. Deviation	N
Women's engagement in entrepreneurship	4.12	.668	90
Loan interest rate	3.61	.944	90
Loan recovery mechanisms	3.63	.965	90
Loan accessibility	4.11	.741	90

The Descriptive statistics Table 2 revealed income levels at almost all socio-economic strata for both men and women. Participation as entrepreneurs and accessibility to loans were described as "High" (average value 4.12), which suggests micro-credit companies have done a great deal to promote women's participation in entrepreneurship. That conforms with the argument advanced by Mrindoko and Pastory (2022) that micro-credit makes it possible for women to set themselves free at last. Interest rates (mean = 3.61) and recovery plans for loan defaults (mean = 3.63) were all given middling scores. Although these factors are important, they might pose a hindrance to women entrepreneurs. Loan interest rates (mean = 3.61) and loan recovery mechanisms (mean = 3.63) were moderately assessed. The very high mean values obtained for loan availability and participation again suggest that women recognize microcredit as imperative to hitch their star onto entrepreneurship, which is in line with the findings of Alshagawi and Mabkhot (2024).

Table 3
Pearson Correlation Matrix

	LIR	LRM	LA	WEE
Loan interest rate (LIR)	1	.618**	.432**	.326**
		.000	.000	.002
	90	90	90	90
Loan recovery mechanisms (LRM)	.618**	1	.356**	.315**
	.000		.001	.003
	90	90	90	90
Loan accessibility (LA)	.432**	.356**	1	.790**
	.000	.001		.000
	90	90	90	90
Women's engagement in entrepreneurship (WEE)	.326**	.315**	.790**	1
	.002	.003	.000	
	90	90	90	90

These findings are further confirmed by the correlation analysis in Table 3. For instance, loan accessibility showed a strong positive correlation ($r = 0.790$, $p < 0.01$) with women's participation in entrepreneurship. This is consistent with Nzilano and Magoti (2025) who stressed the necessity of credit accessibility in building women's economic independence and power. Loan interest rates also showed a positive correlation ($r = 0.326$, $p < 0.01$), although weaker, indicating that interest rates likewise exert a major impact on entrepreneurship. Loan recovery mechanisms likewise exhibited a positive correlation ($r = 0.315$, $p < 0.01$), meaning that the arrangements for repayment affect women's entrepreneurial prospects. These results are confirmed by Karna (2021), who understood that repayment mechanisms can either help or hinder women's ability to sustain their businesses, depending on how they are structured.

Table 4
Regression Model Summary

Model	R	R Square	Adjusted R-Square	Std. Error of the Estimate	Durbin-Watson
1	.792 ^a	0.627	0.614	0.415	1.656

a. Predictors: (Constant), Loan accessibility, Loan recovery mechanism, Loan interest rate

b. Dependent Variable: Women's Engagement in Entrepreneurship

The regression model summary in Table 4 shows an R-square value of 0.627, meaning that 62.7% this variation in women's entrepreneurship engagement can be explained by Loan accessibility, loan interest rate, and loan repayment (recovery) mechanism. Similarly, this is a strong explanatory power of the model, which signals the importance of these financial variables in shaping women's entrepreneurship. The Durbin -Watson statistics of 1.656 suggest that there was no serious autocorrelation problem; hence the model fits the study. The findings align with (Dunsch, 2022), who stresses that financial variables are essential determinants of entrepreneurial success among women.

Table 6
Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.866	3	8.289	48.196	.000 ^b
	Residual	14.790	86	.172		
	Total	39.656	89			

a. Dependent Variable: Women's Engagement in Entrepreneurship

b. Predictors: (Constant), Loan accessibility, Loan recovery mechanism, Loan interest rate

Table 6 shows that the ANOVA results indicate the regression model is significant ($F = 48.196$, $p < 0.01$), indicating that the predictors together have a significant impact on women's entrepreneurship. This leads to reinforcement of the finding that micro-finance institutions play an essential role in shaping the outcomes of Mwanza City Council's women entrepreneurs. In general., the results show that credit accessibility is the determining factor influencing women's entrepreneurship, while levels of interest and methods of repayment also play a significant but lesser part. It is suggested that microfinance firms should take accessibility as their first priority: reduce administrative procedures, streamline loan applications, and provide flexible repayment methods for the investors, while governments, on the other hand, must control loan interest rates in order to keep them within an affordable range for female



entrepreneurs. In doing so, they will maximize the benefits derived from microfinance. This study adds to existing research by offering evidence that is 'on the ground' in Nzilano and Magoti (2025). It supports the idea that microfinance can give women a degree of economic independence; however, women must not be caught up in unproportional or constricted working environments. In other words, the work practices of the current times should be improved. The study indicated that microfinance institutions exert a significant impact on women's entrepreneurship development in Mwanza City Council, with accessibility being the main force. The opportunity for further development of this study is to elaborate on the key findings and especially apply what one has learnt from them with the loan interest rate command management structure and so on. These findings stress the need for a two-pronged approach: microfinance firms should try to reduce administrative barriers and simplify loan applications, while interest rates need to be carefully adjusted to ensure that they are affordable for women entrepreneurs, and introduce reasonable repayment mechanisms. Only in this way can microcredit provide benefits to women entrepreneurs and bring poverty alleviation to the whole region. This study fills a gap in the existing literature on microfinance funding for women entrepreneurs from Mwanza. It might empower them economically, but it has to be structured with great care if it is not to increase inequality among people (Lubinza et al., 2024).

Table 4
Regression Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.171	.263		4.449	.000		
	Loan interest rate	-.041	.062	-.058	-.663	.509	.566	1.766
	Loan recovery mechanisms	.048	.058	.069	.817	.416	.608	1.645
	Loan accessibility	.712	.066	.790	10.740	.000	.801	1.249

The regression analysis in Table 4 gives us a more detailed picture of how these variables work in combination. The constant term, at 1.171, reveals that even if loan accessibility, interest rates of loans, and payment terms have no effect, micro-credit institutions themselves still produce good results in women's business activities. However, it was loan accessibility that stood out as most significant and influential. Its coefficient is 0.712, which means if you increase it by one unit, there's a substantial rise for women entrepreneurs. This highlights the importance of access. Concerning loan-related interest rates, they had a negative coefficient (-0.041). This suggests that for setting up your own business venture as a woman to become popular, higher loan rates are a disadvantageous incentive. It was supported in Tariq and Bhat (2020) and also by findings elsewhere, such as no amount of microcredit helps when you suddenly need to find thousands for interest at 4%. Loan recovery formulas had a positive but slight coefficient (0.048), suggesting that the design of the repayment system is important for promoting entrepreneurs; however, this effect is not as significant as accessibility.

V. CONCLUSION & RECOMMENDATION

5.1 Conclusion

The study of women entrepreneurs has found that they are faced with heavy financial burdens. The statistical evidence showed that taking out loans is difficult for a great number of them. And when loans are extended, the amounts often just fail to meet business ingredient-scribing needs at all. In sum, women's businesses could offer remarkably diverse cuisine options but remained unsuccessful due to repayment procedures being regarded as a complexity ding on top of that. Attempts to change these problems, such as holding back interest rates, people have proposed savings bank accounts with interest payments largely very advantageous to the savings bank. At this practical level, it is cash-strapped microcredit institutions that stand to derive gains. Ultimately, interest payments along with recovery charges cost the institutions more money, so one has to question their worth for clients. In addition to loans, microcredit institutions also offer women entrepreneurs' savings services, which clients believe are inadequate. They say that dealing with such things as deposits and withdrawals is difficult. But the fact that interest rates on savings accounts are very low does not give women any incentive to save regularly. And making savings mandatory or by certain times has been, of itself, unsuccessful in changing women's saving habits. Therefore, those findings have increased urgency for customized financial plans targeted at women entrepreneurs. Without such changes, microcredit systems are likely to continue promoting financial exclusion as opposed to relieving it.



5.2 Recommendations

It is suggested in this report that developing women entrepreneurs will need a holistic effort encompassing teaching them new skills, helping with money, and creating opportunities. To begin, the state must make educating women a priority, ensuring that all women, even those without formal approval, complete at least the first eight years of primary school, since such an education is basic and necessary for them to be successful in owning or managing a business. Second, as microfinance institutions are often women's only source of funds at the lowest socio-economic levels, government departments must formulate policies that encourage institutional financial institutions to provide more services to women entrepreneurs; in this way, both credits can be expanded and financial products tailored specifically to their needs. Third, community organizations must take an active role in their own efforts to enhance the financial literacy and business management capabilities of their members. Microfinance institutions; the initiative for the entire process cannot be left entirely up to local organizations that promote a culture of savings, provide resilience training for entrepreneurs, while also encouraging collective support structures.

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Optimizing secondary schools' computer science education to foster a digitally skilled workforce for the Tanzania Development Vision 2050

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ABSTRACT

The Tanzania Development Vision 2050 calls for a digitally skilled workforce to create a prosperous, just, inclusive, and self-reliant economy, responding to the global shift from manual to digital economies. However, little is known about how well computer science education in secondary school is optimized to establish a solid digital foundation for the national workforce. Specifically, the study examined the trends of students sitting for computer science in the certificate of secondary examination, the secondary school leavers' experience of the computer science subject, and the influence of the computer science subject on the digitally-workforce for Tanzania Development Vision 2050. The study employed an explanatory cross-sectional design, a mixed-methods approach, and human capital theory. Data were gathered through questionnaires from 385 out of 417, 866 students who completed the Certificate of Secondary Education examination between 2017 and 2025, along with nine reports from the National Examination Council of Tanzania. The sample was chosen through stratified sampling techniques in which each year from 2017 to 2025 formed a stratum, and from each, a total of 45 respondents were randomly sampled. The analysis used descriptive, Spearman's rank correlation, Chi-square, and content analysis techniques. The findings show that out of 4,170, 866 students who completed the Certificate of Secondary Education between 2017 and 2025, only 29,945 (0.7%) studied computer science, suggesting that 99% of these students are digitally illiterate. Additionally, most students view computer science as highly relevant, and it is positively and strongly associated with and influencing a digitally skilled workforce for Tanzania's National Development Vision 2050. Despite the fact that they desired to study it, the subject was not offered in their schools. Based on these observations, the study concludes that there is an urgent need to teach computer science as a compulsory subject in all secondary schools to drive workforce digitalization for economic growth and sustainable development. Future research could focus on addressing the digital skills gap among students who finished secondary education without computer skills.

Keywords: Certificate of Secondary Education Examination, Computer Science Subject, Digital Skilled Workforce, Secondary Schools, Tanzania Development, Vision 2050

I. INTRODUCTION

The global labour market requires a digitally-skilled workforce to enhance the effective and efficient use of artificial intelligence, big data, cloud computing, and automation technology in production and service sectors of the economy (Schwab & Zahidi, 2020). Therefore, teaching information technology and computer skills is essential, as emphasized in the global Sustainable Development Goals 2030 (United Nations Conference on Trade and Development [UNCTAD], 2024).

Education systems in Europe, America, Latin America, Asia, and the Arab world have incorporated information technology and computer skills into their curricula to build a digital foundation from elementary levels (Miller et al., 2020, 2020; Guitert et al., 2021; OECD, 2020; Alaleeli & Alnajjar, 2019). In the African context, a workforce equipped with information and computer skills is essential to foster the 'Africa we want' through Agenda 2063, as detailed in the digital transformation strategy for Africa 2020-2030 (Union, 2020). Therefore, it is taught at the secondary level of education in countries such as Nigeria and Morocco (Amadhila, 2021).

Similarly, the sub-Saharan African countries such as Ghana and South Africa have given information and computer skills a dual position, as a vehicle for imparting education as well as a subject of study, due to the need to stimulate economic growth and sustainable development (Akongo et al., 2025). Similarly, the socio-economic transformation in the South African Development Cooperation (SADC) through SADC Vision 2050 requires a workforce with essential digital skills to meet its targets (Abrahams et al., 2022). This has led SADC countries, including Zambia and South Africa, to prioritize digital skills (Markowitz, 2019; Muduva et al., 2024; Mnisi et al., 2024).



Moreover, achieving the East African Development Vision 2050 requires the effective utilization and integration of information and communication skills in all sectors of the economy, such as agriculture, mining, tourism, and fisheries, as well as in the service sectors, such as health, education, transportation, trade, and communication (Tramberend et al., 2021). Therefore, information technology and computer skills are taught as a subject from the primary level of education, as observed in all East African countries, including Kenya, Uganda, Rwanda, and Sudan (Faustino et al., 2024).

These global and regional needs for digitalization have been reflected in the Tanzania Development Vision 2050, which aims to achieve a prosperous, just, inclusive, and self-reliant economy under the three main pillars: a strong, inclusive, and competitive economy; human capabilities and social development; and environmental integrity and climate change resilience. All these pillars imply a dire need for computer skills to catalyze the socio-economic transformation (Edjang-Nguema & Torrent-Sellens, 2025). Therefore, the government of Tanzania has declared that computer applications are one of the compulsory supportive subjects for Form I-IV students of ordinary secondary education (Ministry of Education, Science and Technology [MoEST], 2025:1).

1.1 Statement of the Problem

The Tanzanian government aims to achieve a prosperous, just, inclusive, and self-reliant economy by 2050 (MoEST, 2025). However, the shift from manual to digital in production and service sectors threatens this goal unless the government advances digitalization of its workforce to bridge the digital divide (OECD, 2020; OECD, 2024; Alenezi & Alfaleh, 2024). Consequently, the government developed the National Digital Economy Strategic Framework 2024-2034 and a computer application curriculum to promote digital workforce development for economic growth and sustainable development (Utonga et al., 2026). Despite these initiatives, little is known about the trends of students sitting for the computer science examination in certificate of secondary education, students' experiences with computer science during their secondary education, and the influence of the computer science subject on the digitally skilled workforce for Tanzania's Development Vision 2050. This highlights the need for this study.

1.2 Research questions

- i) What are the trends of students sitting for computer science in the Certificate of Secondary Examination?
- ii) What is the school leavers' experience of the computer science subject in their secondary education?
- iii) What is the influence of the computer science subject on the digitally-workforce for Tanzania Development Vision 2050?

II. LITERATURE REVIEW

2.1 Theoretical Review

The theoretical underpinning of this study is human capital theory, proposed by Gary Becker and Theodore Shultz in the 1950s and early 1960s, which emphasizes the need to impart specific skills to the workforce as a human capital investment (Becker, 1975). The theory is relevant to this study because Tanzania's Development Vision 2050 requires a digitally-skilled workforce to transform production and service provision from manual to digital as a driving force to a prosperous, just, inclusive, and self-reliant economy. The theory regards employees as an invaluable organizational and national asset for achieving the national vision, hence the need to ensure the national asset keeps pace with global and regional digitalization processes through education and training (Oltular, 2025; Awu et al., 2025; Wuttaphan, 2017). Moreover, the theory proposes that training and education for human resource development should be specific to meet institutional needs. Therefore, the specific needs in the case of the Tanzania Development Vision are digital skills, which are expected to be imparted through the teaching and learning of the computer science subject in secondary schools (Kessler & Lulfesmann, 2022).

2.2 Empirical Review

The global demand for digital skills to promote economic growth and sustainable development has made computer science education an integral part of various education systems worldwide (Angeli & Ioannou, 2015). Such skills are vital to keep up with technological advances across sectors of the economy (Elbagory, 2024). In England, computer science is taught as a required subject to improve digital skills for the digital economy (Fowler & Vegas, 2021). In the United States, the government legislated the formal teaching of computer science in kindergarten (Cohen-Vogel et al., 2022). Even in Latin American countries, computer science is valued as a tool for digital skills and is taught to all students starting from elementary education (OECD, 2020).

In the Middle East, computer science is a mandatory subject in secondary schools to meet the digital needs of the emerging generation (Alaleeli & Alnajjar, 2019). Paraguay's digital inclusion program has made computer science teaching compulsory in both public and private secondary schools (Troche et al., 2025). Asian countries such as India,



Indonesia, Singapore, South Korea, China, and Japan have incorporated computer science into secondary education, making it a required subject (Zheng, 2025).

In Africa—specifically Nigeria, Ghana, and Morocco—computer science is viewed as a pathway for digital skills, and it has been introduced as a compulsory subject in all secondary schools to foster a digital culture among youth (Davidson & Ezeh, 2023; Mnisi et al., 2024). In Sub-Saharan Africa, countries like South Africa and Zambia have declared computer science education as a way to boost digital literacy for economic growth, investing in infrastructure to provide these skills to all students (Kala, 2023).

Similarly, East African countries—such as Rwanda, Uganda, Kenya, and Sudan—require a digitally literate workforce to support regional and national economic progress and sustainable development; thus, computer science is a core part of their basic education curricula (Faustino et al., 2024). In Tanzania, the secondary education curriculum states that ‘computer science’ is a compulsory supportive subject in ordinary secondary education, implying it should be taught to all students (MoEST, 2025:1). This aligns positively with Tanzania’s digital economy strategic framework 2024-2024 (Utonga et al., 2026).

The national digital economy strategy emphasizes the need for computer skills to meet the demands of secondary education students, as highlighted by various scholars (Timotheou et al., 2023). All reviewed literature underlines the importance of teaching computer science in secondary schools to develop a digitally skilled workforce that drives economic growth and sustainable development. However, in the Tanzanian context, despite these curricular and strategic frameworks advocating for digital skills, there is limited empirical evidence on the number of students completing secondary education with these skills, how school leavers perceive secondary computer education, or how computer education influences the development of a digitally skilled workforce in line with Tanzania's Development Vision 2050. This gap underscores the need for this study.

III. METHODOLOGY

3.1 Research Design

The study adopted a cross-sectional explanatory design (Creswell & Creswell, 2022), which is relevant for studying the number of students who sat for computer science in the Certificate of Secondary Education Examination between 2017 and 2025, secondary school leavers’ experience with computer science subject, and the influence of the subject on the digitally-skilled workforce for the Tanzania Development Vision 2050.

3.2 Study Area

The study was generally conducted in Tanzania, where students sit for the Certificate of Secondary Education Examination (CSEE), organized by the National Examination Council of Tanzania (NECTA).

3.3 Target Population

The study population comprised 4, 170, 866 students who completed the certificate of secondary education in nine years between 2017 and 2025. Such a number was obtained from the National Examination Council of Tanzania's performance analysis books.

3.4 Sampling Procedures and Sample Size

A stratified sampling technique was adopted in which school leavers for the nine years (2017-2025) were divided into nine strata, a stratum for each year. From each, 45 respondents were randomly picked to obtain a total sample of 405 out of 4,170, 866 total population. Similarly, nine reports of students who completed their secondary education were purposively sampled from the National Examination Council of Tanzania.

3.5 Data Collection Instruments and Procedures

Data were collected using structured questionnaires supplied to a total of 405 students who completed a certificate of secondary education between 2017 and 2025. The 385 filled questionnaires were received for analysis, which makes a response rate of 95%, which is reasonable. The questionnaire adopted five-point Likert scale items measuring the perceptions and experiences of students on the computer science subject in their former school when they were schooling, the relevance of the computer skills offered in secondary schools, and its effect on the digitally-skilled workforce for the Tanzania Development Vision 2050.

The instruments were self-developed by the researcher and reviewed by the experts in education, Information and Communication technology, as well as statistics, and then piloted to 40 respondents (10%), which resulted in dropping some questions with similar responses and modification of others for clarity due to the ambiguous responses observed in some respondents. Reliability was assessed, and a Cronbach's alpha of 7.7 was obtained. The documentary analysis was conducted for the reports of the Certificate of Secondary Education Examination (CSEE) accessed from

the www.necta.go.tz, the official website for the National Examination Council of Tanzania (NECTA). From each report, the number of students who sat for information and computer science examination was examined in comparison with the number of students who sat for the general subject examination, particularly Civics, in each year between 2017 and 2025.

3.6 Data Analysis

The quantitative data collected through questionnaires were analyzed using the Statistical Package for Social Sciences (SPSS) for generating descriptive statistics in frequency, percentage, mean, and standard deviation, as well as Spearman's rank correlation coefficient. The cross-tabulation table was drawn from quantitative data to enhance the chi-square for hypothesis testing. Moreover, the documentary data were analyzed descriptively, and the results were presented in frequency and percentage.

3.7 Ethical Consideration

Ethical consideration was considered throughout the study as participants were informed of the purpose of the study, consent was sought from them, and they were informed about their right to withdraw. The data and information obtained were purposely used for the study. Confidentiality was observed among the key informants, who were given numbers for the anonymity of their identities. The documentary data used were the open-access reports from the official website of the National Examination Council of Tanzania.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Demographic information of the respondents

The study examined the demographic information of the respondents in terms of age and sex. The results are presented in Table 1.

Table 1

Demographic Information of the Respondents

Demographic Information		Frequency	Percent
Age	15-20	187	49
	21-25	165	43
	26-30	20	5
	31-35	13	3
Sex	Male	178	46
	Female	207	54
Total		385	100

Source: Field Data

The results on the respondents' demographic characteristics presented in Table 1 indicate that the school leavers involved in the study were aged between 15 and 35 years. These are the youth who fall under the digital generation category, expected to utilize digital economic opportunities (Alaleeli & Alnajjar, 2019). Therefore, the involvement of these groups in the study was significant to gain their perception about the effects of information and computer science on the national development vision 2050.

Similarly, in terms of sex, the results indicate that the study involved both male and female participants because the Tanzanian education policy 2014, revised 2023 edition, is gender inclusive, and the national digital economy strategy 2024-2034 addresses the digital divide across gender; it was necessary to harness the perceptions of both male and female school leavers (MoEST, 2023). The rationale for involving different age groups and sexes in the study was the inclusive nature of the Tanzania Development Vision 2050, which entails the participation of both males and females and age diversity to achieve a prosperous, inclusive, and self-reliant economy (Utonga et al., 2026).

4.1.2 Trends of Students Sitting for the Certificate of Secondary Education Examination in Computer Science

The study examined the trends of students who sat for the certificate of secondary education examination in the computer science subject from 2017 to 2025. The results are presented in Table 2.

Table 2

Trends of students sitting for the Certificate of Secondary Education Examination in Computer Science (2017–2025)

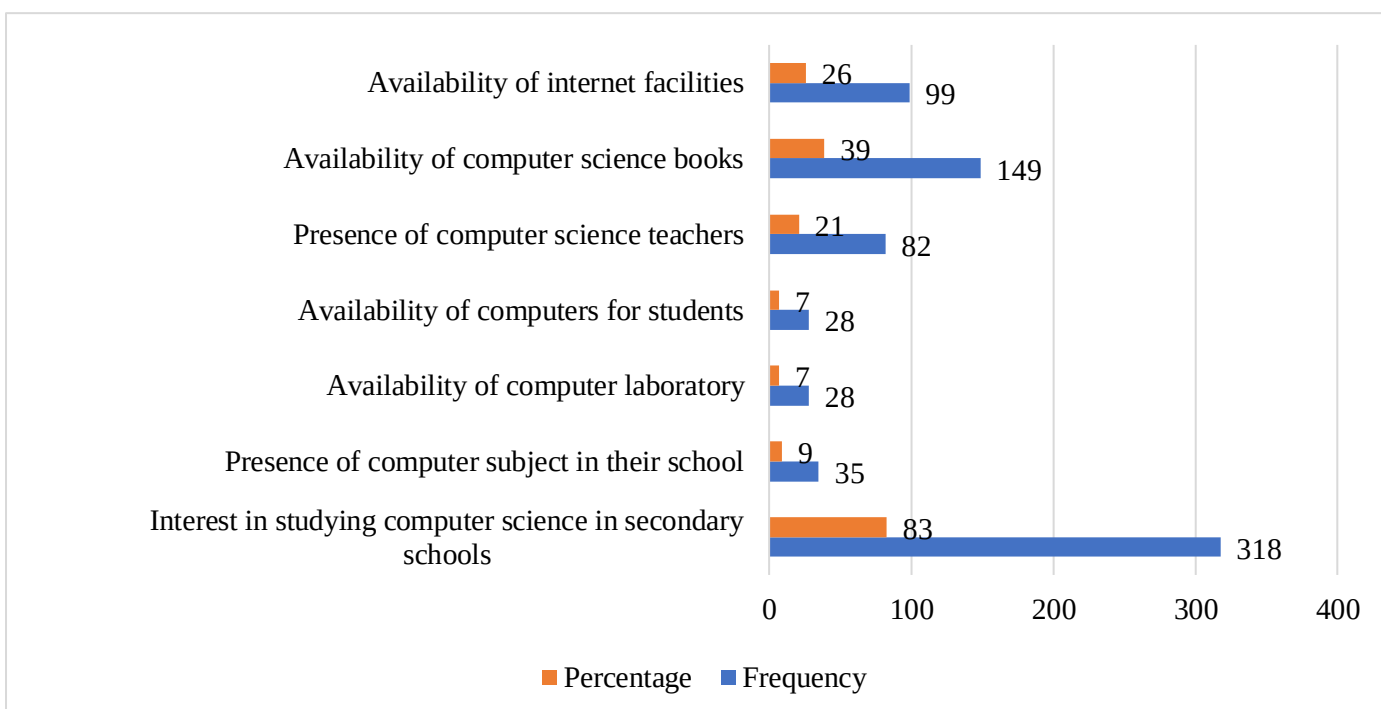
Year	Total Candidates	ICS Total Candidates	ICS Candidates %	Passed ICS%
2017	317,673	2,420	0.76	87
2018	360,405	2,820	0.78	86
2019	424,939	2,786	0.65	72
2020	437,518	2,702	0.61	89
2021	484,783	2,700	0.55	94
2022	520,393	3,067	0.58	92
2023	529,427	3,527	0.66	90
2024	517,328	4,295	0.83	94
2025	578,400	5,628	0.97	96
Total	4,170,866	29,945	0.7	89

Source: NECTA Reports (NECTA, 2017; 2018; 2019; 2020;2021; 2022;2023; 2024;2025; 2026).

The results presented in Table 2 indicate that the trends of students sitting for computer science subjects in the certificate of secondary education examination in nine years, from 2017 to 2025, are, on average, very low, 29,945 out of 4,170,866, which is 0.7%. That means the majority of secondary school leavers (99%) did not study information and computer science subjects at all, or they dropped them along the way before their final years. This means 99% of secondary school leavers in Tanzania are digitally illiterate. However, those few who take it perform very well, which means the subject is well taught and understood by most of the students above 85%.

4.1.3 School Leavers' Experience of Computer Science Subject in their Secondary Education

The study explores the experience of school leavers with computer science subjects in their secondary schools. The results are presented in Figure 1.

**Figure 1**

School Leavers' Experience of the Computer Science Subject

The results presented in Figure 1 indicate that most of the secondary school leavers, 318 out of 385 (83%), were interested in studying information and computer science subjects; however, the subjects were not taught in their schools. Similarly, most of the secondary schools faced a lack of essential resources to support the teaching and learning of

information and computer science subjects, which included a lack of computer laboratories, a lack of computers, a shortage of books, a shortage of teachers, and a lack of internet connectivity.

4.1.4 The Influence of Computer Science on the Digital Workforce and Tanzania Development Vision 2050

The study assessed the influence of the computer science subject on the digitally-workforce for Tanzania Development Vision 2050. The results are presented in descriptive statistics, Spearman's correlation coefficients, and chi-square.

4.1.4.1 Descriptive results

The descriptive results are presented in Table 3, in mean and standard deviation.

Table 3

Descriptive Analysis Results

Variables	N	Min	Max	Mean	Std. Deviation
Digital Workforce for Tanzania Development Vision 2050	385	1	5	4.29	1.127
Basic Computer Operations Skills	385	1	5	3.74	1.266
Word Processing Skills	385	1	5	3.88	1.254
Spreadsheet Skills	385	1	5	4.03	1.220
Database Management Skills	385	1	5	3.89	1.255
Presentation Skills	385	1	5	3.98	1.280
Desktop Publishing Skills	385	1	5	3.88	1.237
Internet Communication Skills	385	1	5	3.75	1.230
Internet Safety and Security Skills	385	1	5	3.91	1.261
Digital Marketing Skills	385	1	5	4.19	1.223
Artificial Intelligence Skills	385	1	5	4.11	1.236

Source: Field Data January to March, 2026.

The descriptive results show that respondents rated the relationship between the skills provided by the computer science subject and the digital-skilled workforce for Tanzania Development Vision 2050 positively, with the mean above the neutral point of 3.0, ranging from 3.74 to 4.19. This indicates that secondary school leavers see computer science as a vital tool for digital literacy, emphasizing the need for it to be offered to all students at that education level.

4.1.4.2 Correlation results

The Spearman's rank correlation results are presented in Table 4.

Table 4

Spearman's Rank Correlation Matrix (N=385).

	DWV	BCO	WPS	SSS	DBS	PRS	DPS	ICS	ISS	DMS	AIS
DWV	1.000										
BCO	.776**	1.000									
WPS	.496**	.731**	1.000								
SSS	.533**	.769**	.650**	1.000							
DBS	.849**	.776**	.606**	.709**	1.000						
PRS	.492**	.754**	.784**	.575**	.729**	1.000					
DPS	.472**	.756**	.517**	.607**	.769**	.610**	1.000				
ICS	.708**	.709**	.518**	.769**	.632**	.747**	.700**	1.000			
ISS	.799**	.776**	.682**	.771**	.674**	.737**	.782**	.783**	1.000		
DMS	.723**	.720**	.657**	.547**	.840**	.814**	.773**	.778**	.701**	1.000	
AIS	.735**	.729**	.754**	.710**	.763**	.808**	.811**	.856**	.880**	.894**	1.000

Key: DWV: digitally-skilled workforce for Tanzania Development Vision; BCO: Basic computer operations; WPS: Word processing skills; SSS: Spread sheet skills, DBS: Database management skills; PRS: Presentation skills, DPS: Desktop publishing skills, ICS: Internet communication skills, ISS: Internet safety and security skills, DMS: Digital marketing skills and AIS: Artificial intelligence skills.



The Spearman's rank correlation results indicate a positive and strong relationship between the digitally-skilled workforce for Tanzania Development Vision 2050 and the computer science subject in terms of its key skills (Basic computer operations, database management skills, internet communication skills, internet safety and security skills, digital marketing skills, and artificial intelligence skills). However, the study found a positive but moderate relationship between a digitally-skilled workforce for Tanzania Development Vision 2050 with word processing skills, spreadsheet skills, presentation skills, and desktop publishing skills. This suggests that the subject is essential to build a digital foundation for students in secondary schools before they join either the labour market or subsequent workforce training programmes.

4.1.4.3 Hypothesis testing results

The study determined the influence of the computer science subject on the digital workforce for Tanzania Development Vision 2050. It tested the two hypotheses that.

H_o = Computer science subject does not influence the digital workforce for Tanzania's development vision 2050.

H_a = Computer science subject influences the digital workforce for Tanzania's development vision 2050.

The frequency of secondary school leavers' responses was categorized based on agreement and disagreement. The result is presented in a cross-tabulation table 5.

Table 5

Response Category Table

RESPONSE CATEGORY	BCoS	DPS	WPS	SSS	AIS	DMS	ISS	DMS	Total
Agree	309	325	319	339	332	316	322	335	2597
Disagree	76	60	66	46	53	69	63	50	483
Total	385	385	385	385	385	385	385	385	3080

The results presented in Table 5 indicate that there were two response categories (Agree and Disagree), in which the number of agreements about the influence of the computer science subject on the digital workforce for Tanzania Development Vision was four times higher than the number of disagreements in all nine skills offered by the computer science subject.

Table 6

Expected frequencies f_e Table

RESPONSE CATEGORY	BCoS	DPS	WPS	SSS	AIS	DMS	ISS	DMS	Total
Agree	324.63	324.63	324.63	324.63	324.63	324.63	324.63	324.63	2597
Disagree	60.375	60.375	60.375	60.375	60.375	60.375	60.375	60.375	483
Total	385	385	385	385	385	385	385	385	3080

The results presented in Table 6 indicate the expected frequency in each of the skills offered by the computer science subject, and the total number of frequencies for both categories, agreement and disagreement.

Table 7
Calculated Chi-Square table

f_o	f_e	$f_o - f_e$	$(f_o - f_e)^2$	$\frac{(f_o - f_e)^2}{f_e}$
309	324.63	-15.63	244.2969	0.7525
325	324.63	0.37	0.1369	0.0042
319	324.63	-5.63	31.6969	0.0976
339	324.63	14.37	206.4969	0.0064
332	324.63	7.37	54.3169	0.1673
316	324.63	-8.63	74.4769	0.2294
322	324.63	-2.3	5.29	0.0163
335	324.63	10.37	107.5369	0.3313
76	60.375	15.625	244.141	4.0437
60	60.375	-0.375	0.141	0.0023
66	60.375	5.625	31.641	0.5241
46	60.375	-14.375	206.641	3.4226
53	60.375	-37.375	1396.891	23.1369
69	60.375	-8.625	74.391	1.2321
63	60.375	2.625	6.891	0.1141
50	60.375	-10.375	107.641	1.7829
Total			$\sum (f_o - f_e)^2 =$	$\sum \frac{(f_o - f_e)^2}{f_e}$

The results in Table 7 indicate that the calculated chi-square is 31.2444. The theoretical Chi-square at a given degree of freedom (df) and a given level of significance, preferably 5% level. Degree of freedom $df = (nr-1)(nc-1)$ where nr is the number of rows, and nc is the number of columns. $Df = (2-1)(8-1) = 7$ at 5%, this gives a theoretical Chi-square of 14.07. Since the calculated Chi-square is greater than the theoretical Chi-square, we reject the null hypotheses and simultaneously accept the alternative hypotheses that the computer science subject influences the digital workforce for Tanzania's development vision 2050.

4.2 Discussion

4.2.1 Trends of Students Sitting for the Certificate of Secondary Education Examination in Computer Science

The study found that the number of students who sat for the certificate of secondary education examination in the information and computer science subject between 2017 and 2025 is approximately 1%. If 99% of the students completing their certificate of secondary education lack essential digital skills, this means that such a population lacks essential digital foundation skills, hence little ability to embrace digital economy opportunities for economic growth and sustainable development. If secondary education is an entry to further education, it means that most of the students joining post-secondary training programmes lack basic digital skills (Shahanga & Kasambala, 2023). This situation implies that the quality of secondary education is questionable if it lacks essential skills (Shahanga, 2025; Shahanga et al, 2021a; Shahanga et al, 2021b). Such results are contrary to the national economy strategic framework 2024-2034, which emphasizes the digitalization of service and production sectors (Utonga et al., 2026). Similarly, the results deviate from the computer science subject curriculum, which requires the subject to be taught as a compulsory subject (MoEST, 2025). The results also differ from the national development vision, which highlights the need for digital skills for promoting economic growth. The deviation between the policy statements and the actual practice means a need for intervention strategies to achieve the policy needs. Globally, these results deviate from Schwab and Zahidi's (2020) report, which regards digital skills as the most employable skills in public and private sectors, and hence to be imparted to all learners at different levels of workforce development. Based on the human capital theory, the lack of digital skills to the 99% of secondary school leavers means inadequate investment in the workforce, which may negatively affect economic growth.

4.2.2 School Leavers' Experiences with Computer Science Subject in Secondary Education

The study found that most of the secondary school leavers did not study computer science even though they were interested in studying such a subject. The reason was a lack of essential resources to support the teaching and learning of such a subject, which included a lack of computer laboratories, a lack of computers, a shortage of books, a shortage of teachers, a lack of internet connectivity, and a lack of such a subject in their school. If such a subject is



highly demanded by students in schools and if most of the schools do not offer such a subject, it means that the negative experience of secondary school leavers about computer science is influenced by a combination of factors, including policy-based and school-based. The demand for computer science by most of the students concurs with previous studies in the Arab world, in which secondary school students were fond of computer studies due to the digital cultural age (Alaleeli & Alnajjar, 2019). However, the lack of computer science subjects in most of the Tanzanian schools deviates from previous studies in the USA, India, Cyprus, and the UK, where computer science is taught in all schools as a compulsory subject (Miller et al., 2020). However, the lack of essential resources to support the subject concurs with previous studies in Nigeria and Paraguay, where the lack of trained teachers, inadequate ICT devices, and lack of reliable internet connectivity affected the subject (Davidson & Ezech, 2023; Boaumadan & Garcia, 2025). Based on the human capital theory, secondary school leavers lack specific skills for the digital economy due to unsupportive school systems.

4.2.3 The Influence of Computer Science on the Digital Workforce in Tanzania's Development Vision 2050

The study found a positive and strong influence of the computer science subject on the digitally-workforce for Tanzania Development Vision 2050. If the computer science subject influences the development of a digitally-skilled workforce for the national development vision 2050, the subject is an essential drive to the vision. Therefore, teaching and studying computer science in secondary schools should be mandatory to achieve economic growth and sustainable development, as suggested in the national development vision 2050. The results concur with the national development vision 2050 (URT, 2025), the computer application syllabus (MoEST, 2025), the Tanzania digital economy strategic framework 2024-2034 (URT, 2024), and the digital transformation strategy for Africa 2020-2030 (Union, 2020). Further, the positive and strong influence of computer science subject on the digitally skilled workforce concurs with previous studies in the Arab World, USA, Europe, Asia, Latin America, and Africa (Alaleeli & Alnajjar, 2019; Miller et al., 2020; Cohen et al., 2020; Boaumadan & Garcia, 2025). Since the labour market needs determine the employability of the graduates, secondary education should equip learners with digital skills, which are highly demanded by employers, and because such skills are offered by the computer science subject, it should be taught to all students (Shahanga & Akyoo, 2025). The teaching and learning of computer science in secondary school for developing a digitally-skilled workforce for the National Development Vision 2050 is supported by the human capital theory, which underscores the roles of training as investment in human capital for economic growth (Becker, 1975; Awu et al., 2025; Wuttaphan, 2017).

V. CONCLUSION & RECOMMENDATION

4.1 Conclusion

The study examined the teaching of computer science in secondary schools to create a digitally-skilled workforce for the Tanzania Development Vision 2050. It found that the trends of students sitting for the computer science subject in secondary schools are low, as statistically shown as 0.7%, despite the increase in students' enrollment following the fee-free basic education policy since 2016. This means 99% of them leave secondary education to enter the labor market or pursue further education without digital foundational skills. Based on this, the study concludes that secondary education prepares a manual workforce contrary to labor market needs. Furthermore, the study explored the experiences of secondary school leavers regarding the teaching and learning of computer science in their schools. The results indicated that most leavers want to study computer science, but their dreams are unmet because the subject was not offered in their schools. Additionally, the study assessed the influence of computer science subject on a digitally-skilled workforce aligned with the Tanzania Development Vision 2050. It found a strong and positive influence of computer science education and the digital workforce needed for the national vision. From this, the study concludes that the teaching of computer science in secondary schools should be enhanced to develop the skilled workforce required for a digital economy, which is central to Tanzania's development agenda. According to human capital theory, secondary education has not yet been fully utilized to develop a digitally-skilled workforce for the Tanzania Development Vision. This diverges from the theory, which emphasizes developing specific skills in the workforce as vital investments for economic growth and sustainable development.

4.2 Recommendation

Based on the results of this study, the following recommendations can be made. Firstly, since few students take computer science even in schools with such a subject, the subject should be made compulsory as other general subjects like mathematics, civics, and business studies. Secondly, the government, through the Tanzania Communication Regulatory Authority (TCRA) and Universal Communication Services Access Fund (UCSAF), should strengthen ICT infrastructure in schools to enhance the teaching and learning of computer science subjects. Thirdly, the school boards should establish collaboration strategies with public and private telecommunication companies to acquire digital tools and infrastructure for the same. Since most of the schools lack desktop and laptop computers, but teachers, parents, and



students possess smartphones, further study may assess the use of smartphones in teaching the computer science subject in secondary schools.

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Board composition, independence, and financial sustainability of microfinance institutions in Zambia: An integrative strategic perspective

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ABSTRACT

Microfinance institutions (MFIs) play a critical role in promoting financial inclusion and supporting small-scale economic activity in developing economies. However, many MFIs continue to experience challenges related to financial sustainability, governance effectiveness, and managerial accountability. This study examines the influence of board composition and board independence on the financial sustainability of MFIs in Zambia, while also assessing the mediating role of leadership accountability and the moderating influence of the regulatory environment. The study adopts an integrative governance perspective drawing on agency theory, stewardship theory, institutional theory, and strategic management theory. A convergent mixed-methods research design was employed. Quantitative data were collected from 114 respondents across 38 regulated microfinance institutions and analysed using descriptive statistics, multiple regression analysis, and mediation and moderation models. Qualitative data were obtained through semi-structured interviews with board members, senior managers, regulators, and clients and were analysed using thematic analysis to provide contextual interpretation of governance practices. The findings reveal that board composition and independence have a positive but statistically insignificant direct effect on financial sustainability ($\beta = 0.081$, $p = 0.274$). However, leadership accountability demonstrates a significant positive influence on sustainability ($\beta = 0.412$, $p < 0.01$) and partially mediates the governance-performance relationship. Qualitative evidence further indicates that boards characterised by independence, gender diversity, and professional expertise enhance strategic oversight, financial prudence, and transparency. The results also suggest that a stable and predictable regulatory environment strengthens the effectiveness of governance mechanisms in MFIs. The study concludes that financial sustainability in MFIs is driven not merely by formal governance structures but by the interaction between effective board oversight, accountable leadership, and supportive regulatory frameworks. By providing empirical evidence from Zambia, this study contributes to the literature on governance in inclusive finance institutions and advances an integrative strategic governance perspective for improving sustainability in the microfinance sectors of emerging economies.

Keywords: Board Composition, Board Independence, Corporate Governance, Financial Sustainability, Leadership Accountability, Microfinance Institutions

I. INTRODUCTION

Corporate governance has increasingly become a critical determinant of financial stability, accountability, and institutional sustainability in modern financial systems. In emerging markets, where financial institutions often operate under conditions of limited market discipline and evolving regulatory frameworks, governance structures play an essential role in reducing agency conflicts, strengthening managerial accountability, and improving organisational performance (Jensen & Meckling, 1976; Tricker, 2015; Klapper & Love, 2004). Within financial institutions, the board of directors is the primary governance mechanism responsible for overseeing management decisions, shaping strategic direction, and safeguarding stakeholder interests. Board independence and board diversity have been widely recognised as key governance attributes that enhance monitoring effectiveness, improve decision quality, and promote transparency in organisational operations (Adams & Ferreira, 2009; Mori et al., 2013; Terjesen et al., 2016).

Microfinance institutions (MFIs) occupy a distinctive position within financial systems because they pursue a dual mission of financial sustainability and social inclusion. Unlike conventional financial institutions that focus primarily on profitability, MFIs aim to expand financial access to low-income households, micro-entrepreneurs, and underserved communities. This dual mandate places significant governance demands on boards, which must simultaneously ensure financial discipline, manage credit risk, and preserve the developmental objectives of the institution (Mersland & Strom, 2009; Hermes et al., 2011; Hassan & Mersland, 2018). Empirical studies have shown

that effective governance structures in MFIs contribute to stronger portfolio quality, improved profitability, and greater institutional sustainability, particularly when boards are independent, professionally diverse, and actively engaged in strategic oversight (Hartarska, 2005; Mori et al., 2013).

In Zambia, the microfinance sector has expanded as part of broader efforts to promote financial inclusion and support small enterprise development. Regulated MFIs operate under the supervision of the Bank of Zambia, which has introduced governance and prudential guidelines aimed at strengthening oversight and risk management within the sector. Despite these regulatory efforts, many institutions continue to face challenges related to portfolio risk, managerial inefficiencies, and uneven financial performance. Evidence suggests that while most MFIs maintain formal board structures, variations in board independence, gender diversity, and professional expertise often limit the effectiveness of governance oversight (Hartarska & Nadolnyak, 2007; Ehikioya, 2009). This situation reflects a broader governance paradox in which institutions comply with formal governance requirements while the functional effectiveness of boards in influencing sustainability outcomes remains uncertain.

1.1 Statement of the Problem

Despite regulatory reforms and the formal establishment of boards across regulated microfinance institutions in Zambia, financial sustainability within the sector remains uneven. Many MFIs continue to face challenges related to portfolio risk, operational inefficiencies, and inconsistent financial performance. Although governance frameworks require institutions to maintain boards and comply with regulatory standards, the existence of these structures does not necessarily translate into effective oversight or improved institutional outcomes. Studies suggest that governance mechanisms may remain largely symbolic where boards lack independence, professional expertise, or active engagement in strategic decision-making (Hartarska, 2005; Mersland & Strom, 2009; Ehikioya, 2009).

This situation points to a structural-functional governance gap in which formal governance arrangements exist but do not consistently influence financial sustainability. Evidence indicates that board independence and diversity contribute to performance primarily when supported by accountable leadership and effective governance practices (Hassan & Mersland, 2018; Mori et al., 2013). Consequently, there is a need to examine how board composition and independence interact with leadership accountability to influence the financial sustainability of microfinance institutions in Zambia.

1.2 Research Objectives

- i. To determine the influence of board composition and independence on the financial performance of MFIs in Zambia.
- ii. To examine how board diversity (gender and expertise mix) contributes to financial prudence and sustainability.
- iii. To explore how leadership accountability mediates the relationship between board composition and financial outcomes.
- iv. To contextualise these relationships within Zambia's regulatory and strategic governance framework.

1.3 Research Hypotheses

- H₀₁*: Board composition and independence have a significant positive influence on the financial sustainability of microfinance institutions in Zambia.
- H₀₂*: Board diversity (gender representation and professional expertise) significantly contributes to financial prudence and sustainability.
- H₀₃*: Leadership accountability significantly mediates the relationship between board composition and independence and financial sustainability.
- H₀₄*: The regulatory environment significantly moderates the relationship between governance structures and financial sustainability.

II. LITERATURE REVIEW

2.1 Theoretical Review

Corporate governance refers to the systems and processes through which organisations are directed, monitored, and controlled in order to promote accountability, transparency, and institutional sustainability (Tricker, 2015). In financial institutions, governance is particularly important because weak oversight can quickly translate into poor asset quality, weak internal controls, and loss of stakeholder confidence. In microfinance institutions, governance assumes even greater importance because these organisations pursue a dual mission of financial sustainability and social outreach. Boards are therefore expected to balance financial discipline with development objectives while safeguarding stakeholder interests (Hartarska, 2005; Mersland & Strom, 2009). This study adopts an integrative theoretical perspective that links four complementary bodies of theory: agency theory, stewardship theory, institutional theory, and



strategic management theory. Each theory contributes a distinct analytical lens through which different dimensions of the governance-sustainability relationship can be examined.

2.2.1 Agency Theory

Agency theory, developed by Jensen & Meckling (1976), constitutes the foundational theoretical framework in corporate governance research. The theory argues that boards exist to mitigate conflicts of interest between principals (shareholders and stakeholders) and agents (managers) by strengthening monitoring, accountability, and information transparency. From this perspective, independent and diverse boards are expected to enhance reporting quality, reduce managerial opportunism, and improve organisational performance. Empirical evidence broadly supports this proposition, demonstrating that stronger board monitoring is associated with improved profitability, risk management, and institutional stability in financial institutions (Adams & Ferreira, 2009; Klapper & Love, 2004). In the microfinance context, agency theory is particularly relevant because MFIs serve multiple principals, including donors, regulators, depositors, and borrowers, each with distinct interests that boards must reconcile.

2.2.2 Stewardship Theory

Stewardship theory, advanced by Davis et al. (1997), offers a complementary perspective to the monitoring focus of agency theory by emphasising that managers may act as responsible stewards whose interests align with those of the organisation. Under this framework, governance structures improve performance by building trust-based relationships, encouraging strategic dialogue, and empowering competent leadership rather than through coercive monitoring. Stewardship theory is particularly instructive for understanding the mediating role of leadership accountability in this study, as it posits that the quality of managerial behaviour, rather than the mere structure of oversight, determines institutional outcomes (Davis et al., 1997; Hassan & Mersland, 2018). In microfinance institutions, stewardship is reflected in the commitment of leadership to both financial discipline and social mission.

2.2.3 Institutional Theory

Institutional theory, as formulated by DiMaggio & Powell (1983), argues that organisations are embedded in broader institutional environments that shape their structures, practices, and legitimacy. Organisations respond to regulatory, normative, and cognitive pressures through isomorphic adaptation, adopting governance practices that conform to prevailing institutional expectations. In the microfinance context, institutional theory is relevant for understanding how regulatory oversight by the Bank of Zambia shapes governance behaviour among MFIs. Regulatory requirements establish the normative framework within which boards operate, and the stability and predictability of this framework significantly influences the effectiveness of governance mechanisms (DiMaggio & Powell, 1983; Hartarska & Nadolnyak, 2007). Institutional theory thus provides the analytical basis for examining the moderating role of the regulatory environment in this study.

2.2.4 Strategic Management Theory

Strategic management theory, drawing on the foundational work of Zahra & Pearce (1989), conceptualises boards not merely as monitoring bodies but as strategic assets responsible for guiding long-term planning, risk governance, and resource allocation. Contemporary governance research increasingly views boards as partners in institutional strategy, contributing to long-term development, innovation, and competitive positioning (Zahra & Pearce, 1989; Mori et al., 2013). This perspective extends agency and stewardship theories by recognising that governance effectiveness depends on the active strategic engagement of boards rather than on compliance with formal governance structures alone. In microfinance institutions, strategic management theory supports the argument that boards must integrate financial sustainability with social mission in their strategic governance activities.

2.2.5 Justification for the Use of Multiple Theoretical Frameworks

The adoption of multiple theoretical frameworks in this study is justified on grounds of analytical complementarity and empirical necessity. No single theory is sufficient to explain the multi-dimensional governance-sustainability relationship in microfinance institutions. Agency theory explains the monitoring and accountability functions of boards but cannot fully account for the behavioural and institutional dimensions of governance. Stewardship theory addresses managerial behaviour and trust-based relationships but does not capture the structural and regulatory constraints within which MFIs operate. Institutional theory explains regulatory influences and isomorphic pressures but does not illuminate internal governance dynamics. Strategic management theory contextualises boards within long-term institutional strategy but does not directly address agency conflicts or leadership behaviour.

The integrative use of these four theories therefore allows the study to examine governance at multiple levels: the structural level (board composition and independence, informed by agency theory), the behavioural level (leadership accountability, informed by stewardship theory), the institutional level (regulatory environment, informed by

institutional theory), and the strategic level (board as a strategic asset, informed by strategic management theory). This multi-level framework provides a more comprehensive and internally consistent explanation of how governance mechanisms interact to influence financial sustainability in Zambia's microfinance sector.

2.2 Empirical Review

Board composition refers to the structure, diversity, and professional mix of board members responsible for overseeing management and institutional strategy. In MFIs, board effectiveness depends on the ability of directors to balance financial sustainability with social outreach objectives (Mersland & Strom, 2009). Several studies show that diversity in board composition, particularly gender and professional expertise diversity, improves oversight quality and strategic decision-making (Adams & Ferreira, 2009; Kang et al., 2007). Evidence from African financial institutions also indicates that diverse boards are associated with stronger governance and improved institutional performance under certain institutional conditions (Ehikioya, 2009). However, empirical findings remain mixed. While some studies report a positive relationship between board composition and financial performance (Adams & Ferreira, 2009; Hartarska, 2005), others argue that larger or heterogeneous boards may slow decision-making and reduce strategic agility (Dalton et al., 2011). In developing economies, smaller but professionally competent boards are sometimes associated with stronger performance because they avoid bureaucratic inertia and coordination problems (Ehikioya, 2009).

Board independence remains a key dimension of governance quality. Independent directors are expected to strengthen transparency, improve audit rigour, and reduce conflicts of interest within organisations (Tricker, 2015). In the microfinance literature, higher levels of board independence have often been associated with improved loan portfolio quality, profitability, and cost discipline (Hartarska, 2005; Mersland & Strom, 2009). However, recent research suggests that independence alone may not guarantee improved governance outcomes. In some contexts, independent directors lack the expertise, authority, or institutional knowledge required to challenge management decisions effectively, a phenomenon that governance scholars describe as compliance formalism, which occurs when institutions satisfy regulatory governance requirements without achieving meaningful oversight effectiveness (Tricker, 2015).

Board diversity, particularly gender and professional diversity, has gained increasing prominence in governance research. Gender-diverse boards are often associated with stronger ethical sensitivity, improved stakeholder communication, and more balanced decision-making (Adams & Ferreira, 2009; Terjesen et al., 2016). Professional diversity introduces expertise in finance, risk management, and strategic planning, which strengthens the quality of board deliberations (Kang et al., 2007). In the microfinance sector, diversity is especially important because institutions must integrate financial sustainability with social responsibility. Nevertheless, scholars caution that diversity alone does not automatically improve performance unless diverse board members actively participate in oversight and decision-making (Terjesen et al., 2016).

Leadership accountability represents an important mechanism through which governance structures influence organisational outcomes. Governance frameworks become effective only when board decisions are translated into operational practices such as strategic planning, auditing, monitoring, and risk management. Management control theory suggests that performance outcomes emerge through planning, monitoring, and feedback mechanisms that align leadership actions with institutional goals (Anthony & Govindarajan, 2007). Empirical studies in the microfinance sector show that accountable leadership improves regulatory compliance, strengthens internal controls, and enhances financial discipline (Hassan & Mersland, 2018; Ansong et al., 2022). In the Zambian context, the interaction between board oversight and managerial accountability appears particularly important for maintaining institutional resilience and operational sustainability.

The integrative strategic governance perspective emerging from recent literature emphasises that governance effectiveness depends on the interaction of governance structure, leadership behaviour, and regulatory context. Rather than treating the board as a purely monitoring entity, contemporary governance research views it as a strategic partner responsible for shaping institutional direction, risk appetite, and performance oversight (Mori et al., 2013). This perspective aligns governance with strategic management by recognising that boards contribute not only to control but also to long-term institutional development and innovation.

III. METHODOLOGY

3.1 Research Design

This study adopted a convergent parallel mixed-methods research design to examine how board composition and independence influence the financial sustainability of microfinance institutions in Zambia. The study integrates quantitative and qualitative approaches in order to capture both the structural and behavioural dimensions of corporate governance within the microfinance sector (Creswell & Plano Clark, 2018). The quantitative component employed a cross-sectional survey design to test hypothesised relationships between governance variables and financial sustainability indicators. The qualitative component complemented the quantitative analysis through semi-structured

interviews that explored governance practices, leadership accountability, board dynamics, and regulatory influences shaping institutional performance. Quantitative and qualitative data were collected and analysed concurrently and integrated during the interpretation phase, allowing for triangulation of findings and deeper insight into how governance structures influence financial sustainability.

3.2 Population and Sampling

The study population comprised all regulated microfinance institutions operating under the supervision of the Bank of Zambia as of 2023). A purposive and stratified sampling approach was applied to ensure representation across ownership categories and management levels. The sample and target respondents are presented in Table 1 below.

Table 1

Type of Respondents

Stakeholder Group	Target Respondents	Rationale
Board Members	15	Governance oversight
Senior Managers (CEO, CFO, Operations, Credit Managers)	84	Operational accountability
Regulators (Bank of Zambia, AMIZ)	5	Policy and compliance oversight
Clients	10	Stakeholder validation
Total	114	

In total, 114 valid quantitative responses and 30 qualitative interviews were analysed. This sample size meets the minimum standards for multivariate regression analysis (Hair et al., 2019).

3.3 Data Collection Instruments

3.3.1 Quantitative Instrument

A structured questionnaire was developed based on established governance and sustainability frameworks (Mersland & Strom, 2009; Tricker, 2015). The instrument captured key variables including board composition and independence (board size, non-executive representation, gender diversity, meeting frequency, and independence ratio), financial sustainability indicators (profitability, revenue adequacy, operational self-sufficiency, portfolio quality, and return on assets), leadership accountability (strategic planning, auditing practices, and risk management tools), and the regulatory environment (perceived stability, predictability, and regulatory support).

3.3.2 Qualitative Instrument

A semi-structured interview guide was developed to obtain in-depth insights into governance practices within microfinance institutions. The interviews explored issues related to board independence and diversity in decision-making processes, leadership accountability and its influence on institutional performance, and the interactions between governance mechanisms and financial outcomes. Respondents were also asked to discuss perceived regulatory challenges and the extent to which governance practices align with institutional strategy. Interviews were conducted both face-to-face and virtually, recorded with the consent of participants, and subsequently transcribed verbatim for thematic analysis.

3.4 Variable Operationalisation

Table 2

Variable Operationalisation

Variable	Measurement Indicators	Type
Board Composition and Independence (BCI)	Board size, non-executive ratio, gender diversity, meeting frequency, client representation	Independent
Leadership Accountability (LA)	Strategic planning, audit implementation, risk assessment, management commitment	Mediating
Financial Sustainability (FS)	Profitability, operational self-sufficiency (OSS), return on assets (ROA), portfolio at risk (PAR), loan default rate	Dependent
Regulatory Environment Strength (RES)	Stability, predictability, fairness of regulatory framework	Moderating

These operational definitions align with established microfinance governance literature (Mersland & Strom, 2009; Hartarska, 2005; Anthony & Govindarajan, 2007).

3.5 Data Analysis Procedures

3.5.1 Quantitative Analysis

Quantitative data were analysed using SPSS version 26 and Stata 16. Descriptive statistics were used to summarise respondent and institutional characteristics. Reliability was assessed using Cronbach's alpha, with all multi-item scales exceeding the threshold of 0.70, indicating adequate internal consistency (Nunnally, 1978). Three regression models were estimated to examine the hypothesised relationships. Model 1 assessed the direct effect of board composition and independence on financial sustainability. Model 2 introduced leadership accountability as a mediating variable. Model 3 tested the moderating effect of the regulatory environment by including an interaction term (BCI x RES). Mediation and moderation analyses were conducted using the PROCESS macro developed by Hayes (2018).

3.5.2 Qualitative Analysis

Qualitative data were analysed thematically following the six-step process described by Braun & Clarke (2019). The process began with familiarisation through repeated reading of interview transcripts, followed by the generation of initial codes reflecting key governance concepts such as independence, gender diversity, and accountability. Coded data were examined to identify broader themes, including functional versus structural governance, ownership dominance, and board empowerment. Themes were subsequently reviewed and refined to ensure alignment with the study objectives. Themes were validated through triangulation across respondent categories to ensure reliability and depth.

3.6 Ethical Considerations

Ethical clearance was obtained from The Copperbelt University Research Ethics Committee. Participation was voluntary, and confidentiality was assured to all respondents. Participants were informed of the study's purpose and provided written consent prior to data collection. Data were anonymised, stored securely, and used solely for academic purposes. The research adhered to ethical standards consistent with international research ethics guidelines.

3.7 Validity and Reliability

To ensure construct validity, measurement items were adapted from validated governance frameworks (Mersland & Strom, 2009; Tricker, 2015). Content validity was established through expert review by governance scholars and MFI regulators. Triangulation of quantitative and qualitative findings enhanced the reliability of results, while pilot testing refined questionnaire clarity and instrument consistency.

IV. FINDINGS & DISCUSSIONS

4.1 Descriptive Statistics

Analysis of board and leadership characteristics across 114 respondents indicates that most microfinance institutions have formally established boards, with moderate to high board composition strength and strong regulatory compliance. However, leadership accountability was rated only moderate, reflecting uneven implementation of strategic planning and risk governance practices across institutions. The descriptive results are presented in Table 3.

Table 3

Board and Leadership Analysis

Variable	Observed Level	Interpretation
Board Composition	Moderate to High	Boards largely established but with varying independence across institutions
Board Regulation	High	Strong compliance pressure from regulatory authorities
Leadership Accountability	Moderate	Uneven implementation of governance and risk management practices
Financial Performance	Moderate	Stable but variable across institutions
Social Performance	Moderate to High	Stronger social than financial orientation in most MFIs

These descriptive results suggest that while governance structures exist, their operational effectiveness, particularly through leadership accountability, remains inconsistent across the sector.

4.2 Hypothesis Testing and Regression Results

4.2.1 H₀₁: Board Composition, Independence, and Financial Sustainability

Regression analysis was conducted to examine the direct relationship between board composition and independence (BCI) and financial sustainability (FS). The results are presented in Table 4.

Table 4*Regression Results: Board Composition and Independence on Financial Sustainability*

Dependent Variable	β	p-value	Result
Financial Performance	0.081	0.274	Not significant
Social Performance	0.067	0.312	Not significant
Outreach	0.054	0.338	Not significant

The regression results indicate a positive but statistically insignificant relationship between board composition and financial sustainability ($p > 0.05$). This finding indicates that structural governance attributes such as board size, meeting frequency, and gender composition do not automatically translate into improved financial outcomes. Board effectiveness appears to depend on how governance structures are utilised in practice rather than on their mere formal existence. This interpretation aligns with governance scholarship suggesting that governance form must be complemented by governance function (Zahra & Pearce, 1989; Tricker, 2015). Accordingly, H1 is not supported.

4.2.2 Ho₂: Board Diversity and Financial Prudence

The quantitative analysis revealed a weak positive relationship between board diversity and financial outcomes, although the effect did not reach statistical significance. However, qualitative findings strongly supported the importance of diversity in enhancing governance effectiveness. Respondents reported that gender-diverse and professionally diverse boards improve oversight, encourage critical questioning, and strengthen decision-making processes. These findings align with existing governance literature suggesting that diverse boards bring broader perspectives, enhance ethical sensitivity, and improve stakeholder responsiveness (Adams & Ferreira, 2009; Kang et al., 2007). The study reinforces the argument that diversity alone does not guarantee improved performance (Terjesen et al., 2016). Institutions must create governance environments where diverse voices genuinely influence decision-making and strategic deliberation. H2 is thus partially supported through qualitative evidence, while the quantitative relationship remains modest.

4.2.3 Ho₃: Mediating Role of Leadership Accountability

The mediation analysis examined whether leadership accountability (LA) mediates the relationship between board composition and independence (BCI) and financial sustainability (FS). The results are presented in Table 5.

Table 5*Mediation Analysis Results*

Pathway	β	p-value
BCI → Leadership Accountability	0.356	0.004
Leadership Accountability → Financial Sustainability	0.412	0.001
Direct Effect (BCI → FS with mediator)	0.038	0.182

The results indicate that leadership accountability significantly predicts financial sustainability and partially mediates the relationship between board composition and institutional performance. When leadership accountability was introduced into the regression model, the direct effect of board composition on financial sustainability decreased substantially, confirming partial mediation. This finding strongly supports stewardship theory (Davis et al., 1997), which argues that organisational performance improves when managers act as responsible stewards of institutional resources. MFIs with proactive leadership teams that implemented board policies, conducted regular audits, and enforced risk management frameworks demonstrated stronger financial sustainability. This pattern is consistent with Hassan and Mersland (2018) and Ansong et al. (2022). H3 is therefore supported.

4.2.4 Ho₄: Moderating Role of the Regulatory Environment

The study also examined whether the regulatory environment (RES) moderates the relationship between governance structures and financial sustainability. The moderation results are presented in Table 6.

Table 6*Moderation Analysis Results*

Model	R ²	Interaction Term (BCI x RES)	p-value	Interpretation
Moderation Model	0.073	Positive	0.021	Significant moderation

The interaction term (BCI x RES) significantly improved the model fit ($R^2 = 0.073$; $p = 0.021$), indicating a moderate but statistically significant moderation effect. The results suggest that governance mechanisms are more effective in institutions operating within stable and predictable regulatory environments. This finding supports

institutional theory, which argues that regulatory stability enhances the legitimacy and functionality of governance mechanisms within organisations (DiMaggio & Powell, 1983; Hartarska & Nadolnyak, 2007). H4 is therefore supported.

4.3 Qualitative Results

Qualitative interviews were conducted with 30 stakeholders, including board members, managers, regulators, and clients of microfinance institutions. Thematic analysis revealed five dominant themes characterising governance practices within the sector.

4.3.1 Theme 1: Governance Maturity and Board Independence

Respondents highlighted notable differences in governance maturity across institutions. Some MFIs have professionalised boards with independent directors, while others remain dominated by founders or related parties, weakening objectivity and accountability. One Chief Executive Officer noted:

"Our board has four non-executive members out of six, which brings transparency and professionalism to decision-making." (CEO Interview, 18 February 2025)

These findings suggest that independence must be accompanied by expertise and institutional authority to influence governance outcomes effectively.

4.3.2 Theme 2: Board Diversity and Expertise

Respondents emphasised the importance of gender and professional diversity in improving governance oversight and strategic decision-making. One board member observed:

"Female board members tend to ask questions about client welfare and product fairness, which changes how we evaluate lending risks." (Board Member Interview, 14 March 2025)

Institutions with diverse boards demonstrated stronger oversight, improved strategic deliberation, and more balanced financial and social governance.

4.3.3 Theme 3: Leadership Accountability as the Behavioural Link

Leadership accountability emerged as the most critical factor translating governance structures into operational performance. One senior manager stated:

"The board sets policies, but it is leadership that ensures plans, audits, and reports are followed through." (Senior Manager Interview, 22 March 2025)

Institutions with strong accountability systems, including internal audits and risk registers, demonstrated greater financial stability and regulatory compliance.

4.3.4 Theme 4: Regulatory Compliance and Institutional Legitimacy

Respondents acknowledged the central role of the Bank of Zambia in strengthening governance practices. One regulator noted:

"We comply because the regulator monitors everything, from audits to loan portfolio reports." (Regulator Interview, 9 April 2025)

However, some institutions viewed compliance primarily as a regulatory obligation rather than as a strategic governance imperative, suggesting the persistence of compliance formalism within the sector.

4.3.5 Theme 5: Integrative Strategic Alignment

Respondents emphasised that governance effectiveness improves when board structures are integrated with strategy and risk management. One board member observed:

"Our board now holds quarterly joint meetings with the strategy and risk committee. It keeps governance relevant to performance." (Board Member Interview, 6 April 2025)

Institutions that aligned governance with strategic planning demonstrated stronger resilience, improved financial outcomes, and greater stakeholder confidence.

4.4 Integrated Interpretation of Findings

The integration of quantitative and qualitative findings reveals a convergent pattern across the key governance dimensions examined in this study, as summarised in Table 7.

Table 7*Combined Quantitative and Qualitative Results*

Dimension	Quantitative Result	Qualitative Confirmation	Integrated Interpretation
Board Independence	Positive but weakly significant	Independence improves transparency and prudence	Independence effective when functional, not symbolic
Board Diversity	Positive relationship (weak)	Diversity improves decision quality	Diversity enhances oversight via broader perspectives
Leadership Accountability	Strong predictor; mediates governance-performance relationship	Leadership ensures board policy implementation	Leadership operationalises the governance-performance link
Regulatory Environment	Moderate moderator	Predictability improves compliance and planning	Supportive regulation enhances governance impact

The integrated results confirm that structural governance mechanisms alone are insufficient to ensure institutional sustainability. Financial sustainability in microfinance institutions emerges from the interaction between functional board oversight, accountable leadership, and a supportive regulatory framework. This integrated governance dynamic enhances both institutional legitimacy and long-term financial resilience, consistent with the Integrative Strategic Governance Model proposed in this study.

4.5 Discussion**4.5.1 Influence of Board Composition and Independence on Financial Sustainability**

The first objective of the study was to determine whether board composition and independence influence the financial sustainability of microfinance institutions in Zambia. The quantitative results revealed a positive but statistically insignificant relationship between board composition and financial performance ($p > 0.05$), indicating that the mere existence of board structures does not automatically translate into improved financial sustainability. This result challenges the strong deterministic expectations of agency theory (Jensen & Meckling, 1976). Similar findings were reported by Hartarska (2005) and Mersland & Strom (2009), who found that board characteristics influence microfinance performance only when they shape managerial behaviour and internal governance processes. From a policy perspective, this implies that regulators and institutions should focus less on the formal composition of boards and more on strengthening board competence, independence in practice, and strategic engagement.

4.5.2 Contribution of Board Diversity to Financial Prudence and Sustainability

The second objective examined whether diversity in board composition, particularly gender and professional expertise, contributes to financial sustainability. The qualitative evidence strongly confirmed the importance of diversity in enhancing governance effectiveness, aligning with the governance literature suggesting that diverse boards bring broader perspectives and improve stakeholder responsiveness (Adams & Ferreira, 2009; Kang et al., 2007). The study reinforces the argument that diversity alone does not guarantee improved performance (Terjesen et al., 2016), and that institutions must create governance environments where diverse voices genuinely influence strategic deliberation.

4.5.3 Mediating Role of Leadership Accountability

The mediation analysis confirmed that leadership accountability significantly predicts financial sustainability and partially mediates the relationship between board composition and financial performance. This finding strongly supports stewardship theory (Davis et al., 1997). Leadership accountability serves as the behavioural bridge through which board oversight translates into tangible financial outcomes. This pattern is consistent with Hassan & Mersland (2018) and Ansong et al. (2022), who found that accountable leadership mediates the governance-performance relationship in African financial institutions.

4.5.4 Role of the Regulatory Environment in Governance Effectiveness

The moderation analysis indicated that the regulatory environment modestly but significantly strengthens the relationship between governance structures and financial sustainability, supporting institutional theory (DiMaggio & Powell, 1983). Institutions operating in predictable regulatory environments appear better able to translate governance structures into effective financial management practices. However, qualitative evidence also highlighted the risk of minimum compliance governance, where institutions focus on fulfilling regulatory obligations rather than building robust internal governance capacity. Regulatory authorities should therefore complement compliance enforcement with governance capacity-building initiatives, including board training and governance performance assessments.



V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study examined the influence of board composition and independence on the financial sustainability of microfinance institutions in Zambia, while assessing the mediating role of leadership accountability and the moderating influence of the regulatory environment. The findings reveal that although board composition and independence are positively associated with financial sustainability indicators, the relationship is not statistically significant. This suggests that structural governance attributes do not automatically translate into improved financial outcomes. Instead, the effectiveness of governance structures depends largely on the functional capacity of boards to provide meaningful oversight, strategic guidance, and accountability.

The study further found that board diversity, particularly gender representation and professional expertise, contributes positively to governance quality and financial prudence, although the statistical relationship was modest. Qualitative evidence strongly indicates that diverse boards enhance decision-making, improve stakeholder sensitivity, and strengthen risk awareness when diverse members actively participate in institutional oversight. A central finding of this study is the critical role of leadership accountability in determining financial sustainability. Leadership accountability was found to significantly predict financial sustainability and partially mediate the governance-performance relationship. This indicates that governance structures influence performance primarily through leadership behaviour and operational implementation. The regulatory environment was found to modestly but significantly moderate the governance-sustainability relationship. Overall, the findings indicate that financial sustainability in microfinance institutions is driven by the interaction between governance structures, accountable leadership, and supportive regulatory environments, rather than by structural governance arrangements alone.

5.2 Recommendations

Based on the findings of the study, the following recommendations are proposed to enhance governance effectiveness and financial sustainability within microfinance institutions in Zambia and comparable emerging economy contexts. First, microfinance institutions should strengthen board effectiveness and competence by ensuring that board members possess relevant expertise in finance, risk management, and microfinance operations. Institutions should prioritise functional governance practices such as active board participation, committee oversight, and strategic engagement rather than focusing solely on structural compliance with governance requirements. Second, MFIs should promote meaningful board diversity, particularly in terms of gender representation and professional expertise. Institutions should create governance environments that encourage inclusive participation in board deliberations and committee activities, ensuring that diverse members contribute substantively to institutional oversight rather than serving symbolic roles.

Third, institutions should strengthen leadership accountability mechanisms to ensure that governance structures translate into operational outcomes. This may be achieved through the implementation of robust internal control systems, regular internal and external audits, transparent reporting practices, and comprehensive risk management frameworks. Fourth, regulatory authorities, particularly the Bank of Zambia, should continue to strengthen governance oversight while also supporting governance capacity-building within the microfinance sector. This may include governance training programmes for board members, the development of best-practice governance guidelines, and enhanced supervisory engagement aimed at improving governance effectiveness across the sector. Finally, microfinance institutions should adopt an integrative governance approach that aligns board oversight, leadership accountability, and regulatory compliance with institutional strategy and risk management practices. By integrating governance structures with strategic planning and operational accountability systems, MFIs can strengthen financial sustainability while continuing to fulfil their broader mandate of promoting financial inclusion and supporting economic development.

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Factors Influencing Student retention in East Kenya Union Conference SDA Secondary Schools in East Kenya: An Empirical Study

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ABSTRACT

Student retention is a significant issue in secondary education, especially in faith-based institutions that prioritize holistic development. This study evaluated student retention in secondary schools affiliated with the SDA Church in EKUC. The study utilized a concurrent mixed methods research design and employed an exploratory strategy through a descriptive survey. The study's subjects comprised students, principals, Conferences/Field Education Directors, and chairpersons of the Board of Management (BoM). The study employed a contemporaneous mixed methods research approach, grounded in expectation theory of motivation. The target population comprised the twenty Seventh-day Adventist Church-operated secondary schools in EKUC. The unit of analysis comprised eleven secondary school principals, five education directors, eleven chairpersons of the school boards of management, and 335 pupils. The cluster sampling technique was employed to obtain the samples. The target demographic was categorized into five clusters: principals, students, education directors, and board chairpersons. Samples were collected from each of these clusters. The data gathering instruments employed were questionnaires administered to students. Interview schedules were arranged for education directors, school Board of Management chairpersons, and principals for the purpose of triangulation. An observation schedule was established. This focused on the school infrastructure and all activities occurring within the institution. The educational facilities and the conduct of teachers within the school were also documented here. The additional instrument employed was the document analysis tool utilized to gather data over a span of 8 years. Three hundred thirty-five students were mandated to complete the supplied questionnaire, while eleven principals, five educational directors, and eleven Board of Management chairpersons had interviews. The documentary analysis method was employed to obtain information on KCSE performance throughout the same eight-year period. The acquired data was evaluated utilizing descriptive statistics, including frequencies, percentages, means, and standard deviations. An study of documents regarding teacher retention was conducted. Content analysis was conducted on the responses from interviews and open-ended questions. The statistics indicate a significant number of pupils in Form 2 and 3 who either withdrew or enrolled during the year. Students were substituted as they withdrew in certain years. In conclusion, the annual turnover rates were elevated. This may impact the learning processes and pupils' academic achievement. The report advocates for schools to implement ways to ensure the availability of learning facilities for pupils. Students ought to be encouraged to persist in their education. Bursaries and sponsorships for students from disadvantaged families should be provided. Spiritual mentoring, employment initiatives, and adaptable fee payment structures should be established to assist children from disadvantaged backgrounds in continuing their education.

Key words: East Kenya Union Conference (EKUC), Secondary Schools, Seventh-day Adventist Church, Student Retention;

I. INTRODUCTION

Schools across the world continue to face persistent challenges related to low student retention. Retaining all students in school is often difficult due to academic barriers, inappropriate academic pathways, or missed foundational learning steps that compromise progression (Ahmed Abdulla, 2024). Student retention refers to the ability of learners to remain enrolled in school and successfully complete an academic programme, which is fostered through self-motivation, institutional support, and guidance interventions such as counseling (Ross & McNamara, 2025). High school retention benefits not only students, by preparing them for further studies and future opportunities, but also schools, through continued fee payments and institutional stability (Deborah et al., 2014). Conversely, high dropout rates reflect a school's inability to meet learners' needs, resulting in both educational and financial losses.

The success of any education system is closely linked to its ability to retain students (Furger, 2008). For example, in California, alarming dropout rates were attributed to socioeconomic challenges, boredom, and peer pressure. Lau (2003) further posited that student retention is shaped by institutional experiences, both formal and informal; negative interactions and experiences significantly increase the likelihood of withdrawal. Orientation programs for new students and supportive school environments are vital in fostering student persistence.



Farrell (2009) argued that student departure should not be solely attributed to personal failure; rather, schools must take responsibility by ensuring effective structures and systems to support students. Schools exist to benefit students, not the other way around, and should not admit learners merely for institutional gain. In South Africa, Subotzky and Prinsloo (2011) emphasized the importance of early detection of attrition risks and timely intervention, noting that barriers such as domestic responsibilities, psychological stress, and economic hardship are leading contributors to low retention.

In Kenya, student retention is recognized as a measure of internal school efficiency. Factors such as collaborative learning, positive student-teacher interactions, and supportive environments enhance persistence, while socioeconomic challenges, child labor, and family responsibilities contribute to dropout rates (Gituriandu, 2010). Dropouts suffer long-term disadvantages, including lower income, poorer health, and greater risk of incarceration, becoming a burden to their families and society.

Despite widespread concern among parents, administrators, and stakeholders regarding low retention (Acom, 2010), limited research has focused on the unique context of private religious schools, such as those operated by the Seventh-day Adventist (SDA) Church (Omar, 2004). Globally, SDA schools are not immune to retention challenges. In the United States, financial constraints have been identified as a major factor in student attrition, with calls for increased funding and enrollment as potential solutions (Thayer, 2008). In Kenya, particularly within the East Kenya Union Conference (EKUC), both student and teacher attrition remain persistent concerns, affecting school stability and effectiveness (EKUC Education Statistics, 2015).

Drawing from professional experience as an education director in the Central Kenya Conference (2005–2015), it has been observed that retention challenges significantly impact Adventist secondary schools, yet there remains a lack of empirical evidence addressing the underlying causes. Thus, despite administrative records indicating declining retention trends in EKUC, the factors contributing to this issue are poorly understood and interventions often lack effectiveness.

1.1 Statement of the Problem

Low student retention remains a persistent challenge in both developed and developing countries (World Bank, 2004), and is particularly evident in SDA Church schools within EKUC (EKUC Education Statistics, 2015). Low retention undermines school budgeting, disrupts academic performance, and compromises overall learning efficiency as new students may struggle to adapt and keep pace. While administrative data points to a declining trend in retention, the underlying causes are not well documented or addressed. Without empirical evidence, interventions may be ineffective or misdirected. This study therefore seeks to examine the factors influencing student retention in SDA secondary schools within EKUC and to propose strategies that can enhance retention and improve educational outcomes.

1.2 Research Questions

- (i) What is the retention trend of students in secondary schools of EKUC from the year 2008 to 2015?
- (ii) To what extent do students intend to remain in school?

II. LITERATURE REVIEW

2.1 Theoretical Framework

This study was anchored on the Expectancy Theory of Motivation, originally advanced by Victor Vroom in 1964 (Vroom, 1964) and later discussed by scholars such as Tinto (2007). The theory posits that individuals are motivated to act in a particular way based on their expectations that their efforts will lead to desired outcomes and rewards.

Expectancy theory explains motivation as a cognitive process in which individuals assess the relationship between effort, performance, and outcomes. Demetriou (2011) further explains that effort leads to performance, and performance leads to valued outcomes. When individuals believe that increased effort will result in improved performance and desirable rewards, they are more likely to be motivated to persist in a given activity.

In the context of education, students are expected to invest effort in their studies with the anticipation that good academic performance, particularly in examinations such as the Kenya Certificate of Secondary Education (KCSE), will enable them to access higher education and better employment opportunities. This expectation of future success motivates learners to remain in school and complete their studies. Continuous assessment and academic feedback further reinforce this motivation by helping students track progress and improve performance over time.

Similarly, the theory can be applied to explain student retention. Students are more likely to remain in school when they perceive clear benefits associated with completing their education, such as academic success, career



opportunities, and improved life prospects. Conversely, when these expected outcomes are unclear or perceived as unattainable, students may become disengaged and more likely to drop out.

The Expectancy Theory is therefore relevant to this study as it provides a framework for understanding how students' perceptions of effort, performance, and rewards influence their decision to persist in or withdraw from school.

2.2 Students in School

According to Wild and Ebbers (2002), student retention is fundamental because a school cannot exist without students. While student enrolment is often easier to achieve, retaining learners until program completion remains a major challenge. Once enrolled, students require structured support systems to ensure they achieve the intended educational outcomes within the expected timeframe. Since students reside in their homes rather than in school, institutional policies must focus on guiding and supporting them throughout their academic journey. School leadership should therefore establish effective monitoring systems for both academic performance and student behaviour, coupled with timely interventions where challenges arise. Such measures help sustain student engagement, strengthen commitment, and increase the likelihood of learners completing their education successfully.

In their studies Loeb, Kalogrides, and Beteille (2011) stated that students have goals which they work toward. For them to remain in course, they need to be motivated with things like sports, as they study. At the same time, they need to anticipate better paying jobs after school. Such students value and will do everything possible to remain. However, there are those who fail to maintain the academic performance and are unable to cope with the school rules. Such are likely to drop out before completing a program. Other underlying factors for low retention of students are as a result of social environment. Reacting on the same, Deborah et al. (2014) argued that student retention benefited individuals by achieving certificates at the end of a school program and prepares them for college/university admission.

Raisman (2009) looked at a school in a business perspective, and says that to retain students in school is to retain school budgets. Losing a student equals losing a customer, which equals losing a budget. This means, the bigger the school enrolment the bigger the school budget. The bigger the budget the more development and the bigger the attraction for more students. Therefore, students are the backbone for any school to succeed. Deborah et al. (2014) agreed with this and say that schools, whether private or public, benefit in one way or another, from the school fees paid by students.

Contributing on the same, Swail (2006), discovered, that losing a student was a loss to the institution. Every student lost was a deficit to the school. It was also a loss to the students who pay school fees and drop out before making use of the money. The other importance of students remaining in school, through the secondary level, college and university is that they stand high chances of better pay than their counterparts who drop out before graduating. In fact, those who graduate with a degree earn 70% more than those who drop out on the way. The other advantage is that student retention increases human capital.

Affirming on the importance of students in a school, Bennell (2004) advised that best ways should be sought to boost student retention as much as possible. Among the ways is to ensure that schools are available within villages to reduce distances. Cases have been reported of students walking as many as 7 to 8 Kilometers to the nearest school. The option should be to have boarding schools, if building new schools in the village becomes impossible. The other alternative is to encourage the opening of private schools. Public schools sometimes discourage student retention due to poor infrastructure, crowded class rooms, crowded buildings with no ventilation and without electricity, as well as having absent teachers, who come to school whenever they feel like.

2.3 Student Retention

In order to retain students in school, there are several factors to look into. Umi (2011) identified academic performance as one way which keeps students in school. In fact, it is one of the major factors. Academic success is among the predictors for student persistence until he/she completes the academic program. It is therefore, important to mind the student's ability prior to admission, through an interview or from records of previous performance. At the same time students, once enrolled they should be oriented to fit into a culture necessary to succeed in education, despite the barriers to success, which naturally exists in a school setting. Students cannot learn well or stay in a school where academic barriers are eminent.

According to Coley, Coley and Holmes (2009) students should not be left alone to find their own levels in academic pursuit. Their success is not about swim or sink. They should be supported by teachers and parents in order to achieve their academic goals. In USA, much effort is put on how to retain students but there is little success nationally. In the year 2013, 1.5 million students joined university education but only 39% graduated in four years while 59% graduated after six years.

In support of this Tinto (2007) stated that due to increase in student attrition and turnover, their retention has become a huge business not only for researchers, but for educators as well as entrepreneurs. This is because without students there can be no school. As a result, many schools opt to admit qualified students because the unqualified ones are more prone to leave than high academic achievers. The other reason for student retention is the ability to assimilate

and integrate into the institution. Every school should eliminate social retention barriers which hinder students from enrolling and staying. Instead, they should make their students have cultural connections. These should be through social cultural groups. If these cultural groups reflect their cultures of origin, chances of student retention are very high, especially when they are allowed to carry their identity into the learning institutions. Such students are more likely to persist until the completion of a school program.

The discoveries of Law (2014), stated that many schools spend a lot of time recruiting students, but do nothing on how to retain them. The effort to recruit new students into the system should match the effort for their retention. Parents take their children to school to benefit from the studies. They expect dividends at the end of an academic program. They should, therefore, be involved in the learning affairs of the children. There should be parents visiting days, possibly on termly basis or parents' week.

The students attend school to finish a program, earn a certificate and proceed to the next level of education. Once they earn degrees, after school, their lives get changed and they get better earnings. This means education enhances quality of life and increases employment. With this in mind, every effort should be put to ensure all the students who enroll in a program remain in school until the completion of the same. Schools should have retention programs where students are oriented to persist until they reap the benefits of being in school. Among the retention programs is the professional peer tutors, making learning centers to be more welcoming and the involvement of the staff members. Face to face orientation is said to work better, once the needy students have been identified. Such should be assigned advisors who have intensive advising sessions before the face to face interactions (Gargia and Thornton 2014).

The further findings of Law (2014), indicated that the face to face advising sessions prepared the students against any possibility of dropping out. This becomes successful up to 92%. In fact, 90% of the students who go through the orientation confess that they get helped by the face to face program and become prepared to remain in school.

Parental involvement was identified by Furger (2008) as one way to enhance student retention. Those who are keen in checking their children's progress make them remain in school. The children whose parents do not visit the school frequently and do not check on their progress are more vulnerable to dropping out before the completion of a program. At the same time, frequent parental visit enables the students to perform better in class. In the United States, schools have come up with programs to enhance retention where parents are involved. These are referred to as *in-school family of sorts*. Their main objective is to advise students to remain. This is normally done by attaching an adult who knows them well to spearhead the effort of retention. Among the emphasis is to make learning interesting. Boredom is discouraged, since it contributes to 47% of student dropping out. Much should be done to identify early indicators of dropping out or transferring.

In support of this, Hoerr (2005) articulated that children benefit more in their studies when their parents are involved in the learning institution. Schools should, therefore, create an environment where parents are welcome to share in the affairs of their children's learning. However, not all parents are active in following up on their children's education. Such require parent-teacher conference to encourage them in the school involvement and teach them the importance of being concerned in the school. There are other parents who only visit school only when teachers call them, after something big has occurred. On the contrary some parents are found at the classroom doors on daily basis. There are other parents who make appointment with teachers yet forget to attend. Such, care less about the education of their children. Parental involvement is so important because it creates a good relationship between home and school, as well as making the child connect home and school.

Contributing to student retention, Saret (2016) stated that students do not begin studies to drop, however, many do. The factors which make them drop should be identified and addressed if learning is to be meaningful and if students are to reap the fruits of education. There is a need to understand the retention theory to reduce student wastage. Tinto's theory on student retention serves a great deal. It concerns the family background, skills, abilities and prior education. The theory also stresses the need to ensure home experience connects academically and socially with the school. While academic reasons contribute only 20 - 30% of retention, other reasons, like isolation and lack of a feeling to belong contributes up to 70-80%.

The National Center for Education Statistics (2003), elaborated that there were other reasons for leaving the school as stated: family problems, friends being in different schools, lack of family encouragement and single parent status. Others include: emotional problems like drug abuse, lack of institutional involvement, lack of teachers' interaction, financial challenges, transportation issues and low academic ability.

Saret (2016), on the contrary, advised that in order for the school to fight the challenges of retention, it should have a mechanism in place to identify early signs of dropping out of school and deal with them before the damage is caused. Prevention is better than cure. These early signs include: uncompleted assignments, no class participation, no taking notes, doing poorly in assignments, not attentive, absenteeism, as well as leaving the school earlier before the scheduled departure time.

Tinto (2007) wonders why student retention is one of the most studied area in education, yet the results have been sophisticated. Why some students leave, while others persist to the completion of the program still remains a

dilemma. Initially dropping out of school was wholly blamed on students that they were less able, lacked self-motivation and that they were less willing to enjoy the benefits of education. Students failed not the institution. Today, however, it could no longer be a guess work. Student retention is a big business with consulting firms in place to educate schools on the best ways on how to retain their students.

It is one thing to know the factors affecting student retention, argues Tinto (2007), and another thing to know how to make them stay. Student dropping out of school is not a reflection of them staying. Why they leave without completion does not tell us why they stay. Neither does it tell us the action plan to make them stay. All efforts should be made to ensure students remain in school, as long as learning is ongoing. Teachers and others who are concerned about the education should be fully committed to ensure there is retention of students at all levels and share with the students past stories of successful students. Mentors should give their own examples on how they persisted and became who they are. Students should be carefully listened to and given all the attention that they require so that they can open up in sharing the possible challenges which make them leave school before completing.

The advice from K-12 (2016) is that the entire school organization contributes to the retention of the students. This includes even the blackboard layout. The holistic approach to learning also enhances student retention. Once students are fully engaged throughout the entire school program, they are likely to bond with the school and have high chances to stay, because a student engaged is a student retained. In fact, students should be engaged throughout the day, seven days in a week. Since retaining students is a complex challenge, it requires serious coordination in a data based scientific manner. Therefore, schools should be highly committed to the factors which enhance retention. There should be retention committees fully engaged in retention matters. These are expected to always have retention reports submitted to the school administration daily, especially the reports of the at-risk students.

III. METHODOLOGY

This study adopted a concurrent mixed methods research design in which both quantitative and qualitative data were collected simultaneously and integrated during analysis. Quantitative data were obtained using structured questionnaires, while qualitative data were gathered through interviews, observations, and document analysis to provide a comprehensive understanding of student retention.

The target population comprised 20 Seventh-day Adventist Church–maintained secondary schools within the East Kenya Union Conference (EKUC). The units of analysis included 11 secondary school principals, 5 education directors, 11 Board of Management (BOM) chairpersons, and 335 students. These groups were selected because principals influence school administration, education directors are involved in policy formulation, BOM chairpersons oversee governance, and students are the primary beneficiaries of educational services. The schools were targeted due to persistent challenges related to student retention and transfers.

Cluster sampling technique was used to select the study sample by grouping respondents into four clusters: principals, students, education directors, and BOM chairpersons. From each cluster, respondents were selected to ensure representation across all key stakeholder groups.

Data collection instruments included student questionnaires and interview schedules for principals, education directors, and BOM chairpersons. In addition, observation schedules were used to assess school infrastructure, learning facilities, and general school environment, while document analysis was conducted to review records on student retention and KCSE performance over an eight-year period. For triangulation purposes, a subset of students (approximately 10 per school) was also interviewed.

Data collection involved administering questionnaires to all 335 students, while interviews were conducted with all 11 principals, 5 education directors, and 11 BOM chairpersons. Principals were interviewed during school visits after questionnaire administration. Education directors and BOM chairpersons were interviewed either face-to-face or via telephone, depending on accessibility. Observations were made during school visits to capture real-time institutional practices and learning conditions.

Quantitative data were analyzed using descriptive statistics, including frequencies, percentages, means, and standard deviations. Qualitative data from interviews and open-ended responses were analyzed using content analysis to identify emerging themes, while document analysis was used to examine trends in student retention and academic performance over the eight-year period.

IV. FINDINGS AND DISCUSSION

4.1 Response Rate

The researcher issued 335 questionnaires to students. All of these questionnaires were returned. This made a response rate of 100% which was considered sufficient for analysis.

4.2 Demographic Profile of Students

The majority of students were girls (53.7%). The rest, boys, were 46.7%. Either sex was well represented in the study. This means that sex bias could be easily avoided in the findings obtained.

All the students (100%) were purposively selected from Form Two Class. This was due to the fact that by the time a student is in Form Two, he or she has a firm understanding of issues related to the school. Such a student can thus adequately respond to the subject under investigation. It is also in this class that students are to change schools before they select the subjects they will undertake in Form Three and Four.

Table 1

Sex of Students

Gender	Frequency	Percent
Female	180	53.7
Male	155	46.3
Total	335	100

The findings obtained show that most of the respondents were boarders (94.3%). This shows that they were able to respond adequately to the subject under investigation since they were mostly at school and could observe all what was happening at the school.

Table 2

Boarding Status

Boarding Status	Frequency	Percent
Boarder	316	94.3
Day scholar	19	5.7
Total	335	100

The majority of the respondents (74.9%) had been enrolled in 2015, a year before this study. They had thus been in the school long enough to understand the subject under investigation. Only a few joined the school in Form 2 (25.1%).

Table 3

Year of Joining the School

The year they joined the school	Frequency	Percent
2015	251	74.9
2016	84	25.1
Total	335	100

One of the students did not respond to the question on KCPE performance (missing 1). As shown in Table 11, the majority of the respondents had above average KCPE scores (more than 251). As such, it can be deduced that the students had adequate qualifications to undertake secondary education and could easily make decisions to remain in school, if their needs were met.

Table 4

KCPE Score

KCPE Score	Frequency	Percent
below 250	49	14.6
Between 250-300	110	32.8
Between 300 – 350	105	31.3
Between 350 – 400	62	18.5
400 and above	8	2.4
Missing	1	0.3
Total	335	100

4.3 Descriptive Statistics on Students' Intention to Remain

The students tended to agree that they were to remain in their current schools until they sat for KCSE. In addition, some were not thinking of transferring to any other school even though an opportunity to do so arose. They knew that remaining in the church schools made them better people.

However, majority of respondents could not encourage their siblings and neighbors to join the school (mean of 2.49). The dilemma remained on how students could remain in the school yet they would not encourage others to join them. The possibility is that the SDA schools suffered both low retention and low enrolment because students who study



in them discourage others from joining. This is evidenced by the fact that Form 2 students were 30 per school, on average, a total of 335, instead of 990 Form 2 students within the schools under investigation.

Table 5

Descriptive Statistics on Students' Intention to Remain

Intention to remain	Minimum	Maximum	Mean	Std. Dev.
I plan to remain in this school until I sit for KCSE	1	4	3.08	1.102
I love this school that I am not thinking of transferring to another one	1	4	2.87	1.126
I will not transfer to another school even though an opportunity to do so arises	1	4	2.51	1.204
I am decided to remain in this school to be a better person	1	4	3.26	1.032
I can encourage my siblings and neighbors to join this school	1	4	2.49	1.331
I will miss this school once am through with my studies	1	4	2.99	1.197
This is my best school since when I started learning	1	4	2.54	1.298
Average	1	4	2.82	0.875

N = 335

During the observation schedule, the researcher discovered that each school had enough empty classrooms (one extra for every class from 1 to 4) to accommodate 90 students, each with a capacity of 45 students per classroom. Each school, lacked sixty students in every Form 2 class. On average, the SDA schools in EKUC operated at only 33.83% of the required capacity.

Owing to the fact that students were not willing to recommend others to join their school, could mean that the students were forcing themselves to remain in the Adventist schools. What then could be the reason behind it? This could mean that although they had decided to remain, there were some challenges which needed to be rectified. At the same time, there was a possibility that although they felt uncomfortable in staying in the schools they could have remained due to either pressure from parents or because they had no alternative but to continue in the schools. They only tended to agree instead of agreeing fully to the given statements.

The students went on to point out that they would miss their school once they were through with their studies. This looks like the turn of events, but could mean they were happy to be in one another's company. When asked, during the interview schedule why they would miss the school after completion, yet they never wanted others to join them, some respondents said that *they would only miss the company of those that they suffered together*.

Lastly, the students pointed out (though not fully) that their current schools were the best since when they started learning. This could be that they were comparing them with the primary schools, which they had left a few years before. Some primary schools, especially the public ones, sometimes had pathetic infrastructure, among other shortcomings. They exhibited no likelihood to leave their current schools. This could be as a result of several reasons, either because they never qualified for other schools or due to religious attachments. On the interview for triangulation, *students confirmed that they rated these schools as best, because of religious satisfaction, as confirmed by Omar (2004)*.

4.4 Students' Turnover and Attrition (2008 – 2015)

The researcher assessed the turnover and attrition trends among students in nine schools for a period of 8 years (2008-2015). This was through secondary data collected from each of these schools. To this, the number of students in Form 2 and 3 who dropped within the year and those who joined were assessed. This is shown in Figure 1 to 3.

The findings obtained in figure 1 show that students were being replaced as they dropped out in some of the years (2009, 2010, 2011, 2012 & 2014). This shows high turnover rates. There were, however, incidences of attrition (students leaving without being replaced) in 2008, 2013 and 2015. In these three years, the number of students who left was more than those who joined the school. Generally, the average number of students who dropped (48) was less than those who joined the schools (61).

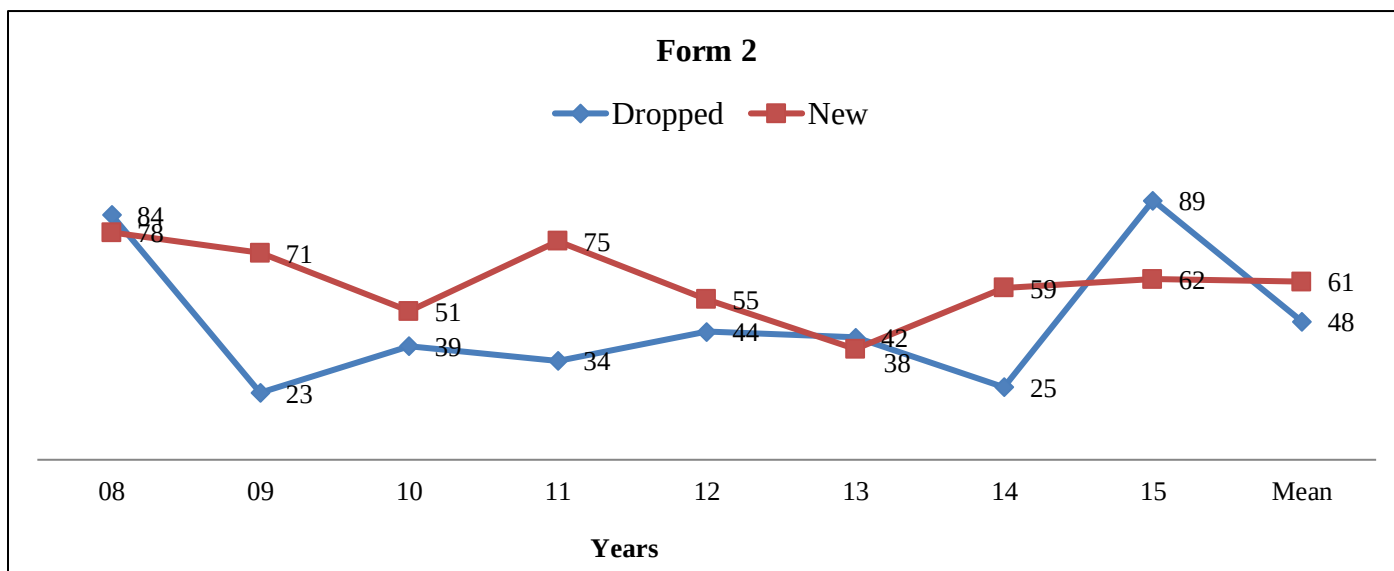


Figure 1
Turnover and Attrition among Form Two Students

Students who dropped in Form 3 within the year were quickly replaced except in 2013. In that year, 106 students dropped but only 89 joined. There was a high turnover in the schools, as shown by the average number of students who dropped out against those who joined, 60 and 94 respectively. These findings show that there was more turnover in Form 3 than in Form 2. This shows that students were more settled in Form 2 than in Form 3. This can be attributed to the fact that students in Form 2 were trying to make a decision whether to leave or remain in the schools. The high levels of turnover in Form 3 could be explained by the fact that students in the class were looking for better schools to prepare for KCSE. This explains the large number of those leaving and those coming into the school.

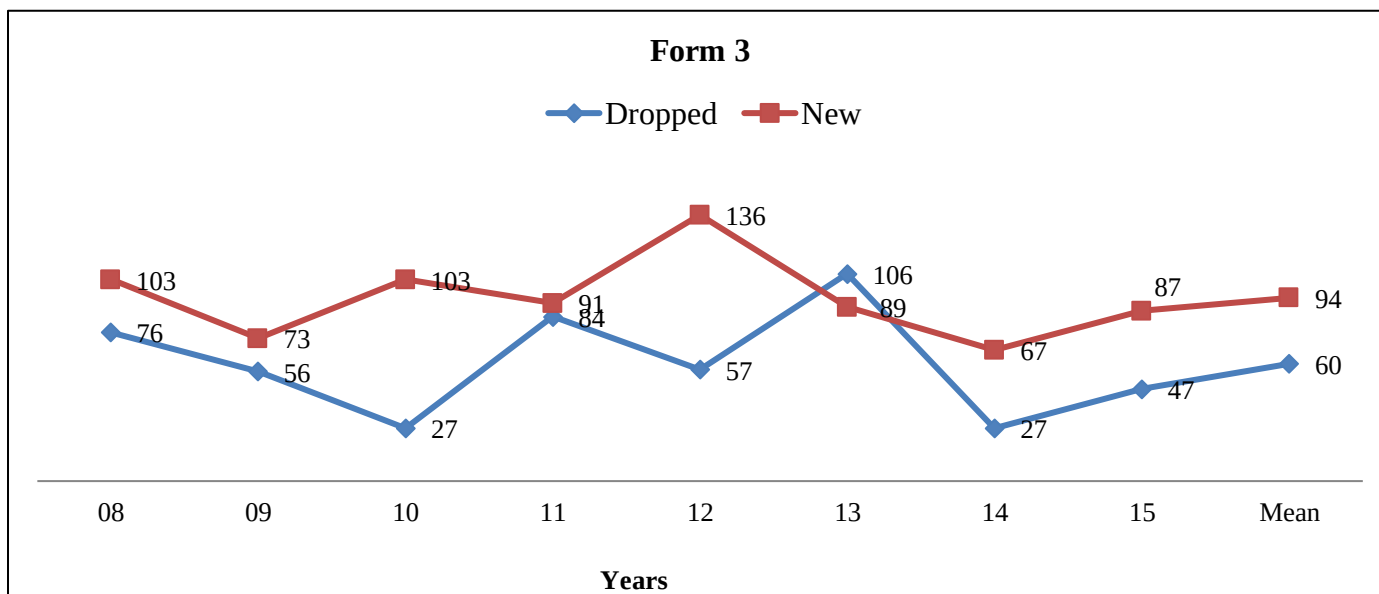


Figure 2
Turnover and Attrition among Form Three Students

As shown in Figure 3, the number of candidates in 9 schools (who responded) between 2008 and 2015 kept on fluctuating. It ranged between 44 and 60. Since 2012, the number of candidates has been on the decline (from 56 in 2012 to 44 in 2015). Although mean scores improved most of the time and did not go below the score of 3.85 recorded at the beginning of 2008, most of this may not be strong indication that the schools' performance kept on increasing

since less number of candidates could increase the central tendency (mean) of scores. These findings show that the schools faced serious challenges with students' retention, especially in the final year of school.

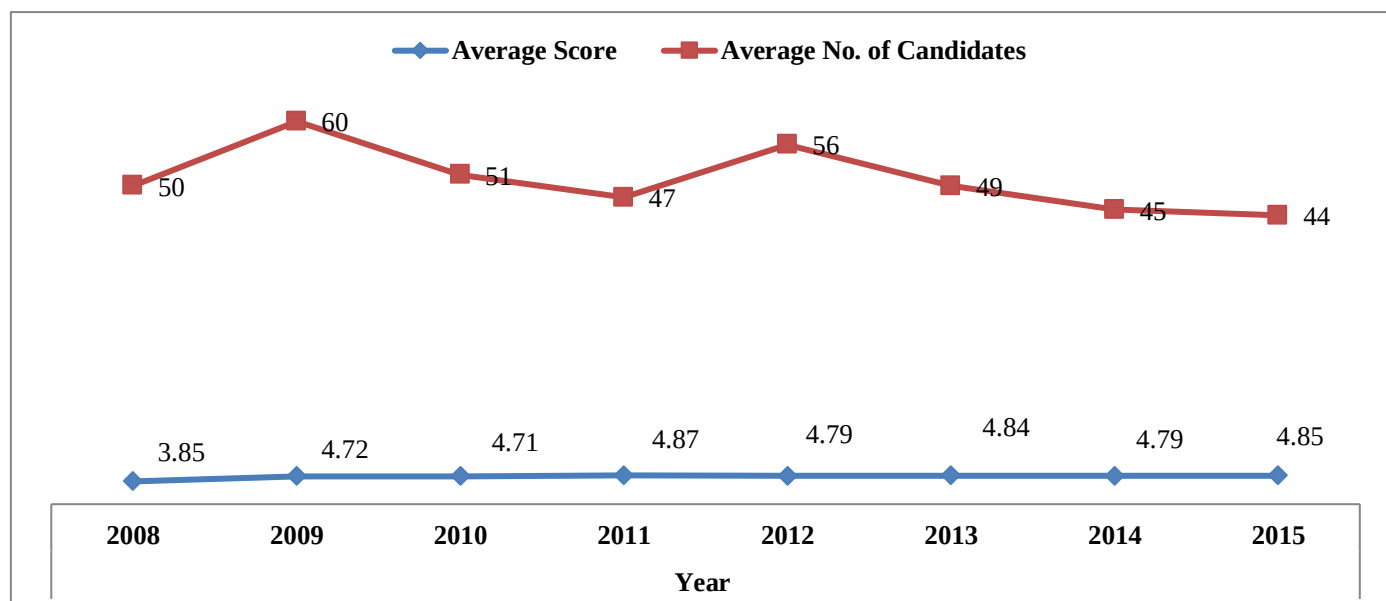


Figure 3
Candidates and Performance in KCSE in 9 schools (2008-2015)

IV: CONCLUSION AND RECOMMENDATIONS

4.1 Conclusions

This study's findings offer substantial insights regarding student retention in secondary schools managed by the Seventh-day Adventist (SDA) Church in the East Kenya Union Conference (EKUC). The data indicated that these schools encounter significant student turnover, especially in Forms 2 and 3, with a substantial number of students withdrawing annually, while others are enrolled to occupy the vacancies. Despite the replacement of certain students upon their departure, elevated annual turnover rates persisted as a consistent characteristic. This volatility is troubling, since it disturbs the continuity of the learning process and challenges the academic achievement of individual students and the schools collectively.

The results indicate that some students are compelled to remain due to factors such as religious connection, personal resolve, or a lack of alternatives, while others persist in the schools due to external pressures or the absence of superior possibilities. Although many students want to complete their studies at these institutions, they exhibit a reluctance to promote the schools to classmates or family members, suggesting probable discontent or unfulfilled needs. The variation in student enrollment, particularly during test years, along with the decrease in candidate numbers since 2012, emphasizes the seriousness of the retention issue. These findings highlight the necessity for a holistic strategy to tackle the elements leading to student attrition and turnover in SDA secondary schools, acknowledging the extensive consequences for institutional efficacy, resource allocation, and student results.

4.2 Recommendations

This study presents various recommendations aimed at enhancing student retention in SDA secondary schools within the East Kenya Union Conference. Firstly, it is imperative that schools prioritize the provision and upkeep of sufficient instructional facilities. Providing students with access to adequately equipped classrooms, libraries, and laboratories significantly improves their academic experience and motivation to persist in their education. Furthermore, educational institutions ought to prioritize student retention by implementing mentorship programs, peer support groups, and consistent counseling services. Such programs can mitigate academic and personal problems, enhancing students' sense of belonging and perseverance.

Financial obstacles were recognized as a major factor in student attrition; hence, educational institutions are urged to enhance access to scholarships and sponsorships for students from underprivileged families. This may entail

cooperation with ecclesiastical organizations, alumni associations, and community stakeholders to procure the requisite resources.

Considering the spiritual essence of SDA schools, it is imperative to preserve a robust values-driven atmosphere. Providing spiritual direction, vocational programs, and character development activities can enhance students' resilience and dedication to their study. Moreover, educational institutions ought to contemplate implementing flexible tuition payment alternatives to assist families experiencing financial difficulties, thereby mitigating the likelihood of student attrition owing to an inability to fulfill financial obligations.

Educational institutions should establish mechanisms to track student attendance, academic advancement, and overall wellbeing. Prompt identification of students at risk of disengagement facilitates timely interventions, whether academic or psychosocial, to mitigate issues before they develop into attrition. Ultimately, involving parents and the broader community in facilitating students' educational experiences is essential. Consistent communication and participation in school activities foster a supportive atmosphere that motivates students to persist until graduation.

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