

Factors affecting mathematics performance among ordinary secondary school students in Tanzania and its implications for future career selection: A review of literature

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ABSTRACT

Performance in the mathematics discipline has been a stumbling block among students completing ordinary secondary schools in Tanzania. The discipline has been showing inefficient results among the finalists of secondary school from year to year despite its importance. This study aimed at analyzing major factors contributing to the subject matter not being well understood among students. The study was conducted in Tanzania purposively in order to meet its objective and guided by the Expectancy Theory of Motivation. The theory posits that students' individual motivation and intensity of work are highly affected by their future's expectations. The study adopted a systematic literature review with the sample involving 22 studies. Data were collected from authentic secondary data sources and analyzed using descriptive statistics. Factors with higher frequencies were adopted as major contributing factors of performance in mathematics in the study area. The study found that mathematics in secondary schools was faced with factors of four categories, i.e., policy-related factors, individual factors, psychological factors, and socio-economic factors. The policy-related factors were major contributing factors to the current problem by 60%. The study concluded that the mathematics subject is seriously faced with a lot of issues, but the leading factors are related to education policy. Solving policy-related factors will mean improving performance in mathematics. The study recommends the Ministry of Education and other education stakeholders come up with a special project/program purposively to improve performance in the subject matter.

Key words: Mathematics, Mathematics Performance, Secondary Students, Tanzania

I. INTRODUCTION

Performance in mathematics discipline has been a stumbling block among students as Mremi and Olanrewaju (2023) indicated that poor performance in mathematics is the problem of the world, although Daniel and Mugiraneza (2023) pointed that mathematics, is one of the oldest fields of study in the history of human beings. Joseph (2013) revealed that officially mathematics to be taught and learned was developed nearly 5,000 years ago by the Sumerians. Theron (2025) emphasized that mathematics performance, at the secondary is a significant topic for discussion among partners in education. Deogratias and Paulo (2025) defined mathematics as the language that help to describe ideas and relationships drawn from the environment. In addition, Michael (2015) defined mathematics as the science of reasoning and computations. Finally, Mbarute and Ntivuguruzwa (2022) defined mathematics as the science or study of numbers, quantities, or shapes. While "performance" denotes the degree of stakeholder satisfaction regarding achieving a particular objective, it is the ability of an individual to achieve its goals (Ghalem et al., 2017). Therefore, mathematics performance for this study implies students achieving good marks in the national examination results based on acceptable grade which has been set by the government and that achievement make education stakeholders such as parents, guardians, teachers, Non-Governmental Organizations [NGOs], government among other education stakeholders be proud of it.

Globally, performance in mathematics in secondary schools differ across countries, some of the countries demonstrating high levels of performance and others significantly underperforming (Theron, 2025). Some studies have shown low mathematics performance in many countries like Philippines, Pakistan, Fiji, Ghana and Greece (Daniel & Mugiraneza, 2023). Also, Ayebale et al. (2020) emphasized that competency in mathematics is vital to any individual and nation in domestic and business deals, scientific discoveries, technological innovation, problem-solving and decision making for different situations in life. Nakasiita et al. (2023) put much emphasis that for the study of any science discipline, mathematics is a required as core subject in secondary school. Though mathematics is science but majority of students in secondary schools view it negatively where they consider it to be difficult, deadly, abstract and boring subject (Mbarute & Ntivuguruzwa, 2022) and majority of secondary school students often have a negative

opinion on the Mathematics (Mbedule 2020) operations. Although, mathematics is essential in routine life and play a significant role but its performance has over the years remained very poor world-wide (Abdirahman, 2020). Literature show that there is poor performance in mathematics even in developed countries like England, China, Japan, Korea, Hongkong, Singapore and Russia (Shahanga & Kasambala, 2024). In Britain, for instance the reasons for poor performance in mathematics are considered to be lack of learning support; principal teachers' dissatisfaction with the in-career training of teachers in mathematics; and learners taught by teachers who have not participated in career professional development (Mabena et al., 2021). While in Singapore, poor performance is associated with students' misconceptions (Shahanga & Kasambala, 2024)

In African countries, national reports indicate that mathematics in secondary schools is weak (Mabena et al., 2021) due to inadequacy of school guidance and counseling. Failure in mathematics for some students is caused by lack of self-confidence and personal adjustment to situation (Mbarute & Ntivuguruzwa, 2022). In the South Africa, students fail in mathematics because of teachers do not have effective classroom management skills and applies extreme dictatorship, the classroom environment, lack of well-trained mathematics teachers, inadequate teaching and learning facilities and language difficulties (Mabena et al., 2021). In addition, poor performance in mathematics is attributed to ineffective teachers' preparation, poor methods in teaching, negative students' attitudes, inadequacy of teaching and learning resources and environmental factors (Mbarute & Ntivuguruzwa, 2022). For the case of Nigeria, poor performance in mathematics is due to poor teaching methods, poor language, inadequate teaching and learning materials, parents' factors, schools' factors, policies of education, and poor infrastructures (Olukemi & Olusesan, 2016). On the other hand, lack of committed teachers, teaching without using teaching aids, lack of required knowledge, strictness of teachers, and lack of students practice especially while at home among others (Bah, 2022) contribute to poor performance in mathematics.

In Tanzania, studies show about 79% of candidates fail the national examinations each year, achieving less than 30% pass mark for secondary school (Gowele, 2024) in mathematics. The key factors of poor performance in mathematics include lack of professional training among teachers, inappropriate teaching methods, and large class sizes. Additionally, insufficient use of teaching and learning resources, low parental educational status, irregular class attendance, negative student attitudes toward mathematics, lack of confidence in solving mathematical problems, and inadequate classroom motivation (Deogratias & Paulo, 2025). Moreover, Gowele (2024) found that poor mathematics performance is often attributed to mathematics anxiety, inadequate preparation, lack of conceptual understanding, fear of failure, and negative attitudes toward the subject. Finally, Katabwa (2025) explored that among of the factors leading to mathematics failures are socio-economic factors, while; Meney and Bunto (2024) revealed that socio-economic factors and teacher qualifications were the significant factors for poor performance in mathematics in secondary schools.

1.1 Statement of the Problem

Although students face challenges in learning mathematics which result into poor performance yet mathematics offer benefits which is crucial to various fields of studies like the foundation of other science subjects such as science, technology and engineering (Mazana et al., 2020) and is the central part of the science (Ndume et al., 2020). The subject fits many disciplines like mathematics in geography, biology and accounting and plays a significant role in sciences (Joseph, 2013). Also, the subject matter is essential in problem-solving (Mremi & Olanrewaju, 2023). In addition, mathematics enables human being to make the invisible to be visible, by solving problems that would be impossible. Moreover, having good knowledge in mathematics lead to positive change in education systems and shape the future prospects of youth and develop infrastructure, improve economic and living standards (Mabena et al., 2021). Furthermore, mathematics provides an effective way of building mental discipline, encourages logical reasoning and have direct application to all sciences, technology, engineering, medicine and business. Finally, mathematics provides good ways of analyzing and solving various problems and enable people to develop a sharp way of thinking through reasoning and enables students to be rational, critical thinkers, engaged in logical processes and essential to life (Joseph, 2013; Kikomelo, 2024). Mathematics is essential to entrepreneurs. The entrepreneurs having sound knowledge in mathematics often perform better business than none (Katabwa and Kalemile, 2025). Always, mathematics is used as a basic entry requirement into any of the prestigious field such as medicine, architecture and engineering degree programmes (Mbugua et al., 2012). The competence in mathematics is applied in many areas of life (Nakasiita et al., 2023). The subject provides the strongest mode of constructing mental disciplines, encourages logical reasoning, mold people for the future challenges (Bah, 2022). The subject plays a central role in modern technological development due to its application in key areas, such as the current development of artificial intelligence and contributes to the wealth of the country (Daniel & Mugiraneza, 2023).

While mathematics seems beneficial but poor performance imply lack of sufficient experts which may results to the lack of effective scientists, engineers and economists in the country (Mbarute & Ntivuguruzwa, 2022). Absence of mathematics experts, signify shortage of scientists, shortage of scientists implies there is no modern technology,

without modern technology, there is no modern society (Mazana et al., 2020). All sciences subjects require mathematics as a pillar since is the core subject in secondary schools. Despite of its attached importance, statistics from the National Examination Council of Tanzania (NECTA) yet shows that mathematics is one of the subjects that majority of students do not perform well in ordinary secondary schools as sample data indicated by (Deogratias & Paulo, 2025) – (Table 1).

Table 1
Performance in Mathematics

Year	2019	2020	2021	2022
Form II Results in %	44.98	68.04	55.77	56.56
Form IV Results in %	20.03	59.63	57.63	49.70

Source: Deogratias and Paulo (2025)

1.2 Research Objectives

To assess factors affecting Mathematics performance among ordinary secondary school students in Tanzania.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Expectancy Theory of Motivation

This study was guided by Expectancy Theory of Motivation. The theory was developed in 1964 by Victor Vroom (Fang, 2023). The theory states that an individual's motivation is affected by their expectations about the future (Wani, 2022). The theory further argues that people's intensity of work effort will depend on their perception that their effort will result in the desired outcome (Fang, 2023) whether present or in future. A student's motivation to engage in mathematics depends on expectancy for success and value attached within the success if it is useful or makes a student happy. Mathematics performance is related to the theory because student with high expectancy to success in mathematics will be more likely to engage in solving mathematical problems and will schedule more time for the subject. At the same time student with low expectancy to success in mathematics will have low morale and will spare short time to engage in the subject and might lead to poor performance. For example, a student who normally fails in mathematics tests may expect low success and if that is the case can avoid practice in mathematics and reinforce poor performance.

Therefore, in order to raise performance in mathematics teachers concerned with mathematics' should show the value attached to the mathematics so as to motivate student performance based on the future expectation. As Mazana et al. (2020) and Mremi and Olanrewaju (2023) documented that mathematics is a crucial subject for understanding other science subjects such as engineering, computer science and technology, medicine among others. Understanding importance attached to mathematics can motivate student efforts in mathematics and vice versa is true. Those students motivated by pride or recognition from being good mathematicians will increase efforts (attainment value), while students who enjoys solving questions or competition in mathematics may put more efforts in math (intrinsic value) and lastly, students who see mathematics as essential for future development like medicine, accounting, engineering, etc. will prioritize mathematics (utility value). Lastly, student expecting to have business operations and expecting to calculate profit margin, breakeven points that require mathematics skills will increase appetite because of utility value attached to the subject and vice versa also is true.

2.2 Empirical Review

The study investigated studies documented factors influencing students' mathematics performance from literature. Factors searched, found and recorded that influencing mathematics performance was grouped into four categories. Those categories involved policy related factors, individual factors, psychological, socio-economic and individual factors as documented and presented from empirical literature review.

2.2.1 Policy Related Factors Hindering Mathematics Performance

Policy-related factors influencing mathematics performance in ordinary secondary schools, as documented in the literature, include a shortage of qualified mathematics teachers, insufficient learning materials, poor teacher motivation and job dissatisfaction, instructional challenges, and classroom management issues (Jeremiah et al., 2020). Inadequate teaching and learning resources, a lack of competent teachers, low language proficiency, poor teaching methods, and overcrowded classrooms further exacerbate these challenges (Salahot, 2022). The absence of skilled teachers, limited teaching resources, lack of teaching aids, understaffing, low motivation among teachers, issues related to examination setting, inadequate teacher preparation, students' weak background in mathematics, lack of

linkage to real-life experiences, classroom atmosphere, changes in the language of instruction, and issues with language clarity versus content comprehension also impact performance (Mazana et al., 2020). Moreover, poor teacher competence, insufficient or inadequate teaching and learning facilities (Mremi & Olanrewaju, 2023), lack of professional training, inappropriate teaching methods, large class sizes, limited use of available resources, and low classroom motivation continue to pose significant barriers (Deogratias & Paulo, 2025). Inadequate teaching methods and poor learning environments further hinder effective instruction (Gowele, 2024). Additionally, challenges such as insufficient teaching resources, large class sizes, and the presence of inadequately trained teachers persist as major issues (Lulu, 2024).

Environmental factors also play a role, including poor competency in the language of instruction, lack of libraries, absence of school-provided meals, school location, and the inadequacy of relevant textbooks for teaching mathematics (Lilian & Josephat, 2018). The lack of mathematics laboratories, overcrowded classes, substandard teaching and learning conditions, poor study environments, and insufficient learning materials continue to affect student outcomes (Meney & Bunto, 2024). The absence of qualified teachers, limited teaching resources such as textbooks, laboratory equipment, and stationery, and understaffing in most schools compound these issues. Low teacher motivation, ineffective instructional strategies, weak content knowledge, issues related to examination setting, and poor teacher preparation in curriculum implementation further hinder student performance (Daniel & Mugiraneza, 2023). Teaching quality, defined as the principal techniques and strategies used for instruction (Ayebale et al., 2020), is compromised by the shortage of qualified teachers, particularly specialists trained in key subjects like mathematics. Teachers are often improperly deployed and end up teaching subjects they are not qualified in, which results in a lack of dedicated educators capable of effectively addressing student questions. There is also a significant shortage of basic teaching resources such as textbooks, laboratory equipment, and stationery (Ngutunyi et al., 2024). Furthermore, teachers lack access to relevant and innovative pedagogical practices to support student learning and foster interest in mathematics. Low teacher qualifications, inadequate motivation, insufficient resources and materials, and ineffective curriculum design are among the main causes of poor student performance (Nicodemus & Kihwele, 2024).

2.2.2 Individual's Factors Affecting Mathematics Performance

Poor performance in mathematics in secondary schools is closely linked to individual factors. These include students' lack of interest in mathematics, low self-confidence, limited practice, and a lack of drive and enthusiasm among both teachers and students. Additionally, students' ability and self-concept play significant roles (Jeremiah et al., 2020). Other contributing factors are poor instructional strategies, students' aptitude, attributes, age, ineffective learning strategies, inadequate methodology, and insufficient knowledge of the subject matter (Mazana et al., 2020). Poor teaching methods in mathematics have also been identified as a major issue (Mremi & Olanrewaju, 2023). Irregular class attendance and a lack of confidence in solving mathematical problems further hamper progress for both students and teachers (Deogratias & Paulo, 2025). Inadequate preparation, a lack of conceptual understanding, fear of failure, and a perceived irrelevance of the subject matter contribute to poor performance (Gowele, 2024). Truancy has been noted as a significant factor, with studies by Lilian & Josephat (2018) and Meney & Bunto (2024) highlighting its impact. Gender disparities also influence mathematics achievement; the belief that boys perform better than girls tends to negatively affect girls' attitudes toward the subject. Comparative studies have shown that girls often lack confidence in mathematics compared to boys (Ayebale et al., 2020). Furthermore, high teacher absenteeism disrupts lessons and consistency (Ngutunyi et al., 2024), which ultimately leads to poor performance in mathematics.

2.2.3 Psychological Related Factors Affecting Mathematics Performance

Poor performance in mathematics is also associated with psychological factors. These factors stem from personal attitudes and feelings about the subject, whether positive or negative. Such reasons are often linked to myths and beliefs about mathematics, as well as perceptions and attitudes that consider the subject to be particularly difficult (Jeremiah et al., 2020). Teachers' emotions within the classroom and their attitudes towards students' abilities in mathematics also play a significant role (Mazana et al., 2020). Similarly, students' attitudes and perceptions towards mathematics tend to be negative (Mremi & Olanrewaju, 2023), which adversely affects their performance. Negative attitudes towards the subject are highlighted in various studies, with students perceiving mathematics as challenging and having a generally unfavorable outlook (Deogratias & Paulo, 2025; Gowele, 2024). Both students' attitudes and teachers' emotions in the classroom influence performance, as evidenced by research examining the dynamics between teachers and students (Daniel & Mugiraneza, 2023). These negative attitudes among students are seen to significantly impact their achievement in mathematics. Furthermore, teachers' attitudes towards mathematics (Ayebale et al., 2020) also affect student performance, with the majority of students harboring negative perceptions of the subject and perceiving it as difficult (Nicodemus & Kihwele, 2024).

2.2.4 Socio-economic Factors Affecting Mathematics Performance

Factors related to socio-economic conditions that affect mathematics performance in secondary schools include family background and support systems (Jeremiah et al., 2020). Low parental educational status and limited parental influence are significant concerns (Gowele, 2024; Katabwa, 2025). Additionally, gender and parents' occupations, as well as factors such as parents' or guardians' education levels, distance to school, and family chores, impact students' performance (Lilian & Josephat, 2018; Meney & Bunto, 2024; Katabwa, 2025). Parental influence plays a vital role, serving as a role model and encouraging children to pursue higher educational goals, including success in mathematics (Ayebale et al., 2020). Socioeconomic challenges also contribute to low student motivation and participation; factors such as poverty, parental neglect, and the necessity for students to work to earn income demotivate them from actively engaging in class activities (Katabwa, 2025). These issues negatively affect academic performance and learning outcomes. Poverty, neglect, and struggles to meet basic needs often discourage students from valuing education, thereby impacting attendance, engagement, and overall academic achievement (Ngutunyi et al., 2024).

2.2.5 Immediate Outcomes of poor performance in Mathematics in Secondary Schools

For this study factors affecting students' performance in mathematics were grouped into four clusters i.e. policy, socio-economic, individual and psychological factors. These factors have direct impact for students to have poor performance in mathematics during Form II and Form IV national examinations or in other assessments. These lead a student to be in a state of inability to identify the requirements of the questions; inability to correctly perform mathematical operations; failure to formulate equations/inequalities from given information, inability to correctly represent given information in diagrams; lack of skills to draw graphs; failure to follow given instructions; inadequate knowledge and skills in using the laws, formulae, theorems and other mathematical concepts in answering the questions and substituting incorrect data in these formulae during any assessments whether national or internal exams. This study analyzed seven NECTA consecutive reports from 2018-2024 famous as the Candidates' Item Response Analysis Report on the Certificate of Secondary Education Examination (NECTA, 2018: 2019:2020:2021:2022:2023). The NECTA reports revealed similar factors every year respectively which students face as immediate results from factors affecting mathematics performance in secondary education based on the identified four categories of this study.

III. METHODOLOGY

3.1 Research Design

Methodology is a process that guides the research (Creswell & Creswell, 2018) on the other hand; Kothari (2004) argued that research methodology is a systematic way to solve the research problem. The study was conducted in Tanzania purposively because of high mass failure in mathematics has indicated in various reports. The study adapted systematic literature to fit the basic purpose of the study. The design supported authors to collect data from documented secondary sources covered from 2017 to 2025. Uttley et al. (2023) pointed that systematic reviews are regarded as the gold standard in evidence creation. The study adopted inclusion and exclusion strategies. Patino and Ferreira (2018) define inclusion criteria as the main features of the target population that the researchers used to reply their research question. Hiebl (2021) insisted that criteria disclose the exact reasons why a particular piece of study was included or excluded. On the other hand, Patino and Ferreira, (2018) defined exclusion criteria as features of the potential study participants who meet the inclusion criteria but present with extra characteristics that could interfere with the achievement of the study or increase their risk for an unfavourable outcome. Ernest (2022) while presenting empirical literature study used 20 literatures but other authors' advice that even 12 literatures are sufficient for drawing valid conclusion. Evidence from literature reveal that there is no specific number of papers to be included for study but what matters papers should be sufficient based on various factors such as purpose of the study, availability of relevant studies, time frame chosen, among others. The study adopted inclusion and exclusion criteria based on the following steps: -

3.2 Sources of Data and Search Strategy

Database sources under the study obtained from Google scholar, Science Direct, Scopus, AJOL, Google among others. Papers for study were obtained from Taylor and Francis, Elsevier, Emerald, and AJOL. Yannascoli et al. (2013) recommended that choosing the suitable vocabulary is what guides the researcher in the entire search strategy. The study used different terminologies in searching literature using keywords and Boolean operators. Among phrases used were "factors for poor performance in mathematics in schools", "economic factors influencing poor performance in mathematics", "social factors influencing poor performance in mathematics", "Environmental factors influencing poor performance in mathematics", technological factors influencing poor performance in mathematics",

“administrative factors influencing poor performance in mathematics”, “causes of poor performance in mathematics in schools”, “status of students’ performance in mathematics”, origin of poor performance in mathematics”, “why poor performance in mathematics”, “measures have been taken to improve performance”, “factors promoting good performances in mathematics”, “measures to be taken to improve good performance in Mathematics” and “economic and social factors for improving performance in mathematics”. At each of the phrase words used at the end of each Boolean word the phrase secondary school in Tanzania were included. Using this strategy 176 papers were downloaded.

3.3 Data Screening

By using PRISMA tool, data screening process involved the following steps. First, 176 research papers were searched and downloaded in which after screening it was found that 75 papers were duplicates. Second, the duplicates were left by the study. Third, study quality assessment was done as systematic literature reviews only articles that pass through the full-text screening are subjected for study quality assessment. Fourth, after conducted test for quality assessment for papers for study it was found 79 papers were not qualified for study since those papers were not empirical studies and others were out of scope. Lastly, after screening process and study quality assessment completed, authors read and scanned all 22 studies for inclusion purposes as presented in the PRISMA (Figure 1)

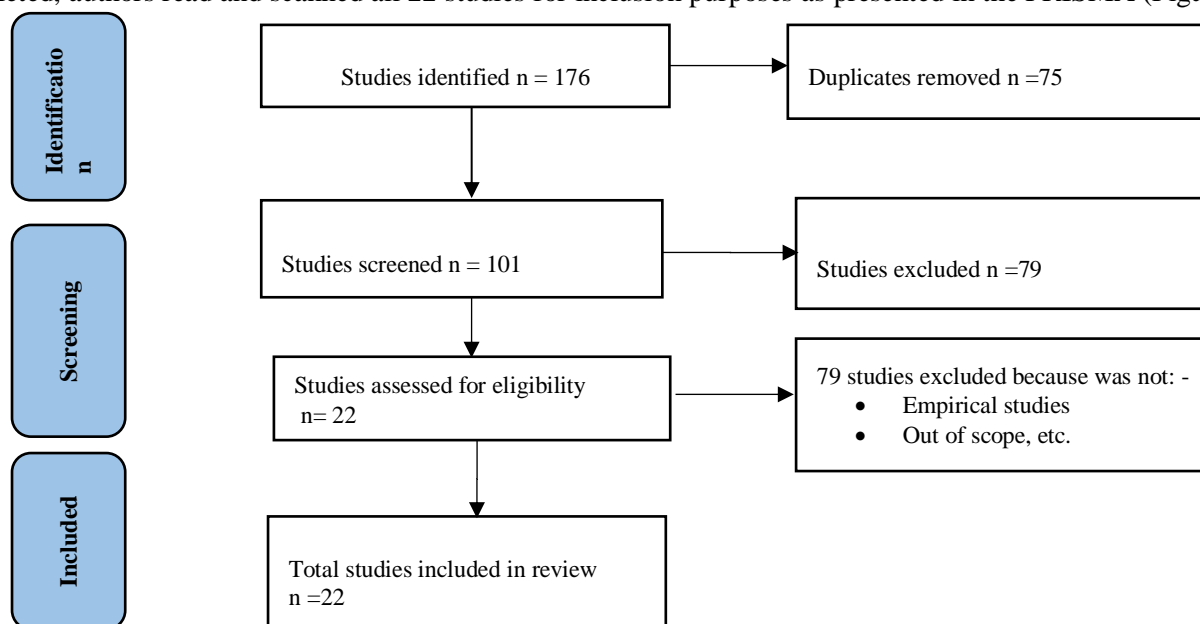


Figure 1
PRISMA Diagram

3.4 Data Analysis

Data Analysis; was done after data extraction, factors obtained were grouped into four categories i.e. factors related to policy, factors connected to individual students, factors linked to psychological and socio-economic factors. Finally, data was analyzed by the use of descriptive statistics (frequencies and percentages) where percentages were calculated based total factors identified as the issues affecting performance in Mathematics (Table 2 and Appendix I).

IV. FINDINGS & DISCUSSION

4.1 Findings

The review of literature on the factors affecting mathematics performance among ordinary secondary school students in Tanzania reveals a complex set of influences that shape students’ academic results. From the findings of this study, a total of 45 distinct issues representing 100% of the identified as factors that contribute to students’ poor performance in mathematics. To provide a clearer analytical framework, these factors were methodically grouped into four major categories that consisted: policy-related factors, individual factors, psychological factors, and socio-economic factors. This classification permits for a deeper understanding of how both systemic and personal factors intersect to influence learning outcomes. A significant proportion of the identified factors, 27 issues (equivalent to 60.0%), fall under policy-related factors. This dominance suggests that the broader educational environment and institutional frameworks play a critical role in shaping students’ performance in the subject. These factors include the

quality of curriculum design, availability of teaching and learning materials, teacher qualifications and professional development, class size, language of instruction, assessment systems and limited in-service training opportunities for teachers.

The next category, based on individual factors, accounts for 10 issues equal to (22.2%). These factors are directly related to the learners and teachers such as prior knowledge, study and teach habits, motivation, attendance, and cognitive abilities. Students who possess strong foundational skills and maintain disciplined study routines are more likely to perform well in mathematics and teachers who are competent in mathematics contribute to performance in the mathematics subject. On the other hand, students with weak academic backgrounds or poor time management struggle to understand mathematical concepts. On the same ground teachers with poor knowledge in the subject matter also contribute to poor performances. Psychological and socio-economic factors jointly account for 8 issues equals to (17.8%), highlighting the importance of emotional well-being and social context in promoting academic achievement. Psychological factors such as anxiety, fear of failure, low self-confidence, and negative perceptions toward mathematics accounted for 8.9% of whole results. Mathematics anxiety, reduce concentration and problem-solving capacity. On the other hand, socio-economic factors include family income, parental education levels, home learning environment, and access to educational support. Challenges like lack of study materials, limited parental guidance, and competing household Appendix I)

Table 2
Factors for Mathematics Performance in Secondary Schools n= 45

SN	Category	# of Identified Factors	Percent
1	Policy elated factors	27	60.0
2	Individual related factors	10	22.2
3	Psychological related factors	4	8.9
4	Socio-Economic related factors	4	8.9
	Total	45	100.0

Source: Study Findings (2025)

4.2 Discussions

4.2.1 Policy Related Factors Hindering Mathematics Performance

From the study it was found that 60.0% of the factors affecting performance of mathematics in schools were related to education policy (Table 2 and Appendix I). These issues which documented in literature by different studies were consist of teachers' lack of relevant skills, low teacher qualifications, low teaching motivation for teachers, and ineffective design of the curriculum. Also, lack or shortage of teaching and learning resources (laboratories, books, computers, internet, etc.), lack of dedicated teachers, teachers are improperly deployed, poor teaching methods, teachers' poor instructional strategies, teachers' weak content knowledge, poor examination setting, poor preparation of teachers and incompetent teachers. In addition, poor study environment, incompetency in language of instructions, lack of provision of meals at schools, school locations, insufficiently trained teachers, lack of regular professional training and low-class motivation. Finally, understaffing in most of schools, poor background in mathematics, lack of linkage of mathematics and real-life experience, language clarity against content clarity, teachers' job dissatisfaction and overcrowded classes. The identified issues from the study which is related to education policy affect students in the process of teaching and learning mathematics. If these issues will note be improved and eliminated will have different consequences to the country.

One of the consequence Tanzania will have difficult to achieve objectives of various national and international documents such as Tanzania Development Vision (TDV) 2025 which aimed to enable the country to achieve a middle-income country having a well-educated and learning society; and Tanzania Development Vision 2050 famous known as DIRA 2050 to achieve the second pillar which emphasize on Science, Technology, Engineering and Mathematics (STEM). Also, the nation will face difficult to achieve the Education and Training Policy 2014 Version (ETP) which insists on the curricula for science and technology to motivate students to realize the importance of science and technology in society. It will be impossible to emphasize science and technology without improving mathematics performance in schools. In addition, the country will face a challenge on achieving Sustainable Development Goals (SDGs) – 2030. The SDG #4 clearly states that, by 2030, there must be a significant increase in the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship. This cannot be achieved if mathematics performance is not well improved in secondary education. Lastly, Africa's Agenda, 2063 Africa we Want; Aspiration 1, Goal 2 which emphasize developing well-educated citizens and skills revolutions reinforced by science, technology and innovation. This will be possible when mathematics will be given enough resources and priorities from kindergarten to university level by solving current issues affecting mathematics in schools.

4.2.2 Individual's Factors Affecting Mathematics Performance

Also, from the study it was noted that 22.2% of the issues affecting mathematics performance was individual factors (Table 2 and Appendix I). Poor performance in mathematics in secondary schools is connected to individual factors. Individual factors imply attributes which learning and teaching mathematics based on the side of students. Students they can have behaviour of having no interest in mathematics, lack of self-confidence, lack of routine mathematics practice, lack of drive and enthusiasm, lack of students' ability or self-concept and inadequate preparation to learn mathematics. Other individual factors consist of factors such as poor methods of teaching mathematics, irregular class attendance (truancy), lack of confidence in solving mathematics and lack of conceptual understanding and fear of failure. These individual factors can be improved by changing behaviour of the learner or instructor. Mathematics is essential if the nation at all want to bring transformation in society. Salahot (2022) emphasized that mathematics is considered a coupon out of poverty in the countries of Eastern Europe, India, and China. Mathematics is applicable in routine life. Mathematics can develop an individual mind since it enhances reasoning, analytical thinking and sharp mind. Routine activities such as traders, farmers, carpenters, mechanics, shopkeepers and music need mathematics. At the same professions such medical doctors, engineering, and ICT, also require mathematics. Students have been encouraged to opt science and mathematics disciplines for future careers and for the nation's development.

4.2.3 Psychological Factors Affecting Mathematics Performance

From the study it was found that 8.9% were issues affecting mathematics performance in schools based on psychological factors (Table 2 and Appendix I). Psychological factors are the painful and sufferings based on attitudes, perceptions and inner feelings of an individual. Poor performance in mathematics is linked with psychological factors such as teachers' emotions in the classrooms. Teachers' attitude towards student's ability on the mathematics. For instance, a teacher can have negative attitude on the students' that they have no ability to perform well in mathematics which may lead not take extra efforts for teaching mathematics believing that they have no capacity to perform mathematics and the same applied to students. Students themselves to have negative perception and attitudes towards mathematics and perceiving mathematics to be difficult and complicated. No any extra effort will be taken as a result the subject will not be given a chance in the timetable of an individual student. Therefore, motivation is needed to boost morale for both students and teachers.

4.2.4 Socio-economic Factors Affecting Mathematics Performance

Form the study it was found that 8.9% were issues affecting mathematics performance in schools based on socio-economic factors (Table 2 and Appendix I). Socio-economic factors refer certain characteristics that explain social and economic background of a person. Socio-economic factors it may include income of an individual or households, sex, education, religion among others. These may affect mathematics performance in secondary school. Issues related to socio-economic factors found by this study were the family back ground and support (whether rich or poor) have contribution to mathematics performance. Low parental educational, sex, and parents' occupation (poverty) they affect mathematics performance in schools. Parents low economic capacity imply negative performance in the mathematics since they cannot afford extra cost for students such as incurring cost of extra studies (tuition), buying class materials such as textbooks, calculators among others.

4.3 Future Implication on career's selections

Many of students' failure in mathematics during final examinations will have implications to a low number of science and mathematics graduates in Tanzania. Similarly, the mass failure in mathematics; if this trend will continue will have negative repercussions on business development contrary to DIRA 2050; the second pillar that emphasizes STEM subjects for Human Capabilities and Social Development. Studies indicate that traders with good knowledge in mathematics are better at pricing their goods and tracking inventory levels. Also, Traders with knowledge in mathematics normally calculate costs and set accurately competitive prices that help to attract customers while avoiding underpricing or overpricing their products. These imply having knowledge in mathematics is very essential for current and future business and enterprise development. The significance of mathematics is not only in attaining academic qualifications but also help to prepare students achieve for their future goals, regardless of their chosen career paths. For any nation to remain significant, it is wisely to recognize the importance of mathematics and come up with actionable plans for improving the subject matter for the betterment of the nation for future development. Finally, the consequences of these findings extend beyond academic achievement to influence students' future career selection. Poor performance in mathematics obvious will limit students' access to science, technology, engineering, and mathematics (STEM) career pathways, which are essential for national development. As a result, majority of learners will opt for career path that do not require strong mathematical competence, thereby narrowing their opportunities in an increasingly competitive and technology-driven in the global economy.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The study aimed to analyze factors affecting students' performance in Mathematics in ordinary secondary schools in Tanzania from empirical literature and to come up with proposal on suitable interventions in improving knowledge among students in mathematics. The study revealed that basic mathematics in ordinary secondary schools is faced with factors that study grouped it into three categories that are education policy related factors, issues associated with individual factors, psychological and socio-economic factors. This study concludes that mathematics subject is still faced with many factors but majority of them are connected to education policy.

5.2 Recommendations

The study recommends Ministry of Education and other education stakeholders in Tanzania to come up with special project/programme purposely to improve performance in the subject matter. That special project/programme should aim to resolve all policy related factors so as to create conducive learning and teaching environment for teachers and students as motivation to both teachers and students as a point of departure. Lastly, the study recommends teachers and students behavioural change in teaching and learning mathematics in schools including changed attitudes towards mathematics. Other studies can be done to compile factors affecting mathematics performance in primary schools in the study area.

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Appendix I: Factors for Hindering Mathematics Performance in Secondary Schools in Tanzania

SN	Category of	Documented Issues From the Study		# of Issues	Percent
1	Policy related factors	Teachers' lack of relevant skills Low teacher qualifications Low teaching motivation for teachers Ineffective design of the curriculum Lack/shortage of teaching and learning resources (laboratories, books, computers, internet, etc.) Lack of dedicated teachers Teachers are improperly deployed Poor teaching methods Teachers' poor instructional strategies Teachers' weak content knowledge Poor examination setting Poor preparation of teachers Incompetent teachers	Poor study environment Incompetency in language of instructions Lack of provision of meals at schools School locations Inadequate teaching resources, Insufficiently trained teachers Lack of regular professional training Low classroom motivation Understaffing in most schools Poor background in mathematics Lack of linkage of mathematics and real-life experience Language clarity vs. content clarity Teachers' job dissatisfaction Overcrowded classes	27	60.0
2	Individual related factors	Lack of mathematics interest Lack of self-confidence Lack of practice by students Lack of drive and enthusiasm Lack of students' ability and self-concept Inadequate preparation	Poor methods of teaching mathematics Irregular class attendance (truancy) Lack of confidence in solving mathematics Lack of conceptual understanding and fear of failure	10	22.2
3	psychological related factors	Teachers' emotions in the classrooms Teachers' attitude towards student's ability	Students' negative perception and attitudes towards mathematics Majority of students perceive mathematics to be difficult	4	8.9
4	Socio-economic related factors	Family background and support Low parental educational status	Gender and parents' occupation Poverty	4	8.9
		Total	-	45	100.0