Industrial Attachment Programme as a Panacea for Graduate Unemployment: A Case of Higher National Diploma Graphic Design Students at the Takoradi Technical University, Ghana

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ABSTRACT

The rapidly evolving global economy requires a dynamic and progressive learning environment that equips trainees with industry-relevant skills. Technical and Vocational Education and Training (TVET) programmes integrate industrial attachment to bridge the gap between theory and practice, enhancing trainees' employability. Aside the implementation of industrial attachment programmes, unemployment remains a concern, increasing from 3.52% in December 2021 to 3.56% in December 2023. This study aims to examine the gaps in acquiring industrial experience as part of the Practical Training Programme for HND Graphic Design graduates at Takoradi Technical University (TTU) and explore strategies to enhance their employability. A mixed-method cross-sectional design was adopted, and data were collected through semi-structured interviews and structured questionnaires and analysed through the lens of Human Capital Theory (HCT). The study highlights the significance of industrial attachment in skill development; however, some trainees face challenges in fully benefiting from the programme due to outdated teaching methods and limited industry exposure. Furthermore, the growing number of trainees exceeds the available internship placements, restricting access to practical experience. Notably, 85% of respondents acknowledged the importance of industrial experience, while 57% reported encountering no difficulties during their industrial attachment. The results suggest that strengthening partnerships between industry and academia is essential to improving industrial training. Government interventions and support for local entrepreneurs and technology start-ups are necessary to expand training opportunities. Enhanced collaboration between TTU and industry stakeholders can bridge the gap between theoretical learning and industry expectations, ensuring trainees are better prepared for the workforce.

Keywords: Employability, Mentorship Coaching, Proficiency, Technical Vocational Education & Training, Unemployment

I. INTRODUCTION

Education serves as a key driver of societal development by equipping individuals with values, knowledge, skills, and experiences that enhance their employability. However, in today's rapidly changing job market, theoretical knowledge alone is insufficient to prepare graduates for employment. The workplace plays a crucial role in shaping trainees' competencies, and as a result, there is a growing need for stronger collaboration between industry and educational institutions to bridge the gap between academic learning and real-world application (Mordi, 2020; Mends-Brew & Dadzie, 2016). One of the key education models designed to enhance practical skill development is Technical and Vocational Education and Training (TVET). Many developed countries have successfully industrialized by implementing TVET-driven policies, highlighting their role in fostering economic growth, reducing unemployment, and promoting skill-based learning (Moses et al., 2016). Historically, TVET evolved from traditional apprenticeship programs to structured industrial, occupational, and vocational education frameworks. It gained global recognition following the Second International Congress on TVET in South Korea in 1999, which positioned it as a critical tool for enhancing workforce employability (Boakye-Yiadom et al, 2025; Maclean & Lai, 2011).

TVET plays a crucial role in developing economies, where unemployment remains a major challenge. It provides students with industry-relevant expertise and practical training essential for their professional growth (Oyebola et al., 2022). In Africa, TVET is defined as the application of scientific knowledge and practices to improve human surroundings (Olabanji & Oyebolu, 2013). In Ghana, the Tertiary Education Policy and Reforms emphasize the importance of technical education in addressing national development needs (GoG, 2019). Since the colonial era,

successive governments have prioritized TVET as a strategic tool for industrial transformation (Nyarko, 2011). However, for TVET to be fully effective, its implementation must align with current industry demands (Sarpong-Nyantakyi et al., 2022). To enhance workplace readiness, TVET institutions incorporate Industrial Attachment Programmes (IAPs), which allow students to gain hands-on experience in their respective fields before graduation (Mends-Brew & Dadzie, 2016). Industrial attachment provides a structured learning experience where students apply theoretical knowledge in real work environments, build industry connections, and develop key skills that increase their employability. Despite the importance of industrial attachment, many graduates still struggle with unemployment, often due to limited practical experience, inadequate internship placements, and a disconnect between academic training and industry needs (Budhrani et al., 2017).

The Higher National Diploma (HND) in Graphic Design at Takoradi Technical University (TTU) aims to equip students with the artistic, technical, and digital design skills required in the creative industry. The curriculum blends traditional design principles with modern digital tools to prepare students for careers in branding, advertising, publishing, animation, and web design. However, the effectiveness of the program in ensuring smooth job market transitions depends largely on the Industrial Attachment Programme (IAP), which provides students with industry exposure and practical skills. Despite the intended benefits of the IAP for HND Graphic Design students, several challenges hinder its effectiveness. Many students struggle to secure placements in relevant industries, leading to mismatched experiences that do not align with their career aspirations. Some students do not receive adequate supervision or industry guidance, limiting their learning outcomes. Additionally, the skills taught in classrooms sometimes do not fully reflect current industry trends and technological advancements in graphic design. The period allocated for industrial attachment may also be too brief for students to gain sufficient practical knowledge and hands-on experience (Sarpong-Nyantakyi, 2023; Asafo-Adjei et al, 2023; Mensah, 2024). These gaps raise concerns about whether the current IAP framework effectively prepares HND Graphic Design students at TTU for the creative job market.

To examine the relationship between industrial attachment and graduate employability, this study focuses on Industrial Attachment Programmes (IAPs) as the independent variable, which includes factors such as internship duration, quality of mentorship, exposure to real-world projects, and industry-academic collaboration. The dependent variable is graduate employability, measured by students' job market readiness, ability to secure employment, industry-relevant skill acquisition, and transition to professional roles. Understanding how industrial attachment influences employability outcomes is crucial for evaluating its effectiveness and identifying areas for improvement. To achieve the study's objectives, the research seeks to answer the question: What are the specific gaps in acquiring industrial experience as part of the practical training programme for HND Graphic Design students at Takoradi Technical University?

This study aims to assess how Industrial Attachment Programmes contribute to bridging the gap between education and employment in the field of graphic design. By identifying challenges and gaps in acquiring industrial experience, the study will provide recommendations for enhancing industrial attachment frameworks to better prepare graduates for the evolving job market.

1.1 Statement of the Problem

Graduate unemployment in Ghana, especially among technical university graduates, remains a pressing issue. One major contributing factor is the insufficient emphasis on practical skills, as theoretical instruction often takes precedence (Aboagye & Puoza, 2021). Additionally, a disconnect between academic curricula and industry demands limits graduates' readiness for the workforce (Mohammed, 2020). The transition from school to employment is further complicated by a lack of job search skills and inadequate support systems (Aboagye & Puoza, 2021; Mohammed, 2020). However, research indicates that 69.50% of TVET graduates secure employment, with 39.20% venturing into self-employment (Ababio et al., 2024). The Higher National Diploma (HND) in Graphic Design at Takoradi Technical University (TTU) is designed to equip students with both theoretical knowledge and practical skills in branding, advertising, digital media, animation, and publishing. However, the extent to which the Industrial Attachment Programme (IAP) effectively prepares students for the highly competitive creative industry job market remains uncertain.

Industrial attachment programs play a vital role in bridging the gap between academic instruction and real-world workplace demands in tertiary education. These programs provide several advantages, such as improving students' technical competencies, professional conduct, and ability to adapt to industry settings (Dondofema et al., 2020; Adjei et al., 2014). Additionally, they foster stronger collaboration between educational institutions and industries, contributing to human capital development and enhancing curriculum relevance (Adjei et al., 2014; Jahonga et al., 2016). However, recent research underscores significant challenges associated with industrial attachment programs for students in Ghanaian technical universities. Major concerns include insufficient funding, inadequate supervision, mismatched placements, and student exploitation (Nunfam et al., 2022). The lack of strong

collaboration between universities and industries further limits students' opportunities for practical skill development (Amponsah & Enninful, 2020). Additionally, students frequently struggle with time management, adjusting to industry expectations, and communication barriers during their attachments (Amaquandoh et al., 2023). The effectiveness of these programs is also undermined by the short duration of placements and issues related to confidentiality breaches (Nunfam et al., 2022). Nonetheless, industrial attachments remain valuable for professional development, skills acquisition, and networking opportunities (Amaquandoh et al., 2023).

The mismatch between the skills acquired in academia and industry demands is another critical issue. The graphic design industry is rapidly evolving, with new software tools, digital marketing trends, and multimedia platforms shaping it (Langan et al., 2019). Yet, many students graduate without proficiency in cutting-edge design software, UI/UX design, motion graphics, or digital branding strategies, which are essential for employment in the modern creative sector. Employers in the creative industry often express concerns that graduates lack essential problem-solving abilities, professional communication skills, and hands-on experience needed to work effectively in a highly competitive, client-driven industry. Given the growing importance of technical universities in Ghana's industrial development, it is imperative to critically examine the Industrial Attachment Programme at Takoradi Technical University and assess whether it effectively prepares HND Graphic Design students for employment. Without a well-structured and impactful IAP, many graduates may continue to struggle with unemployment, underemployment, or career mismatches, ultimately reducing the relevance of technical education in solving Ghana's unemployment crisis.

This study, therefore, seeks to identify the specific gaps in acquiring industrial experience as part of the practical training programme for HND Graphic Design students at TTU. By evaluating the effectiveness, challenges, and industry relevance of the current IAP framework, the study will provide empirical insights into how industrial attachment can be improved to enhance graduate employability in the creative industry. Addressing these gaps is crucial for ensuring that TVET institutions fulfill their mandate of producing industry-ready graduates, thereby contributing to Ghana's broader goals of economic growth and youth employment.

1.2 Research Objectives

i. To assess the perceived benefits of industrial experience and its role in enhancing the employability of HND Graphic Design students at Takoradi Technical University.
ii. To identify the challenges students face in securing and completing industrial attachment programs.
iii. To evaluate the job readiness of students and graduates, examining factors contributing to their preparedness or lack thereof.
iv. To propose strategies for improving the effectiveness of industrial attachment programs in bridging the gap between education and employment.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Career EDGE 'Grow' Models

The study adopts a combination of the 'GROW' Coaching and Mentorship model propound by Whitmore & friends (Kamarudin et al., 2020) and the "CareerEDGE" model advanced by Dacre Pool and Sewell (Figure 1). Dacre Pool and Sewell's (2007) CareerEDGE model which seeks to enhance employability, consists of five vital modules: (i) Degree (Subject Knowledge, Understanding, and Skills); (ii) Experience (Work and life; Industrial Attachment, Mentorship & Networking) (iii) General skills (soft skills & entrepreneurship); (iv) Emotional Intelligence; and (v) Career Development Learning. However, the 'GROW' Mentorship and Coaching model is structured and designed to facilitate personal as well as professional development via self-confidence, and in-depth understanding of the organization culture (Rizvi & Wajid, 2020) and these are achieved through goal setting. The four phases that a trainee goes through while receiving coaching and mentoring are represented by the following four stages (Kamarudin et al., 2020).

First of all, the GOAL stage looks at what the intern hopes to accomplish during the industrial attachment season or internship time. This is when the mentor helps the mentee define goals and match his aims with what the industry expects. The mentor's responsibility is to assist the mentee in establishing specific career goals (Kamarudin et al., 2020). (ii) At the Reality stage, mentors help trainees assess their present experience and abilities to find any gaps that can impair their employment. This helps them become more self-aware. (iii). Option exploration is the phase in which mentors help mentees come up with ideas for new ways to improve trainees' abilities, overcome obstacles, and promote proactive problem-solving (Mensah et al, 2024; Kyei-Akuoko et al, (2024). (iv) The way forward entails moving onward stage entails turning the conversations into choices by implementing particular steps to proceed (Lasley et al., 2015). This supports the idea that a mentor or a coach should assist clients in shifting from their existing

roles to ones that promote higher efficacy and fulfillment (Lasley et al., 2015). One of a coach's most important responsibilities is to help the coachee make better decisions and overcome obstacles in order to help them perform better. The coach also assists the coachee in learning new techniques and methods, which helps them advance in their field (Mensah et al, 2024). The employability framework and the GROW model work together to reduce graduate unemployment because the GROW model is solution-focused and aids in issue-solving and goal achievement. Figure 1 below is a demonstration of the theory.

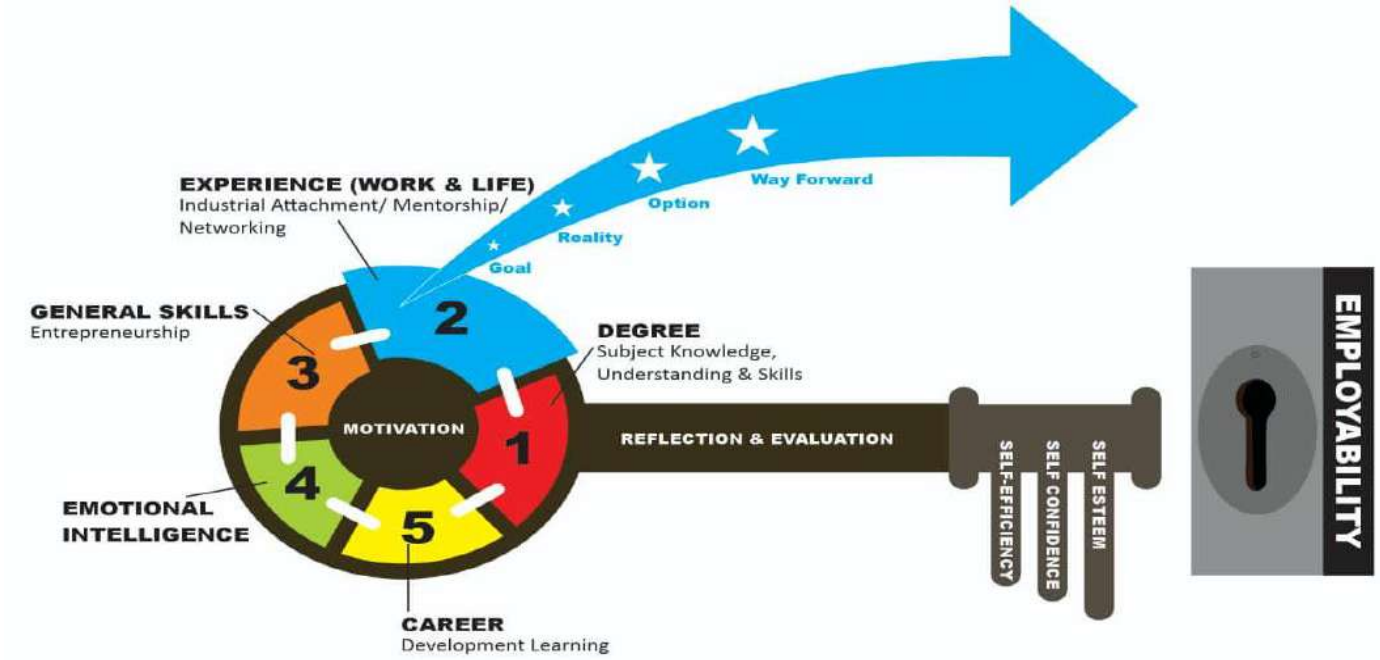

Figure 1
Authors' Construct Adopted from Dacre-Pool and Sewell (2007) and Kamarudin et al. (2020)

2.2 Empirical Review

2.2.1 TVET Education in Ghana

TVET began in 1925 when Governor Guggisberg made major efforts to bring trade, industrial, and agricultural training programs that were focused on practical application into Ghana's educational system (Atsu, 2015). Technical education was essential to the development of the country throughout the 1960s due to the industrial development policy and the rapid growth in several areas (Boakye-Agyeman, 2006). Technical, vocational, and craft programmes were the main focus of instruction at the beginning of polytechnics. There is a divide between the workforce in all sectors of the Ghanaian economy and the managerial strata because universities offer higher tertiary courses for managerial positions, while technical institutions like polytechnics offer second-cycle craft courses (Biklen & Casella, 2007).

It was also discovered that graduates of the former polytechnics, which are now technical universities, played a different role than their counterparts from traditional universities. The polytechnics were upgraded to tertiary rank after the Ghanaian government established the University Rationalization Committee (URC) in response to the graduates' incapacity (GoG, 1993). Thus, the URC study serves as proof of a methodical attempt to schedule the upgrading by Ghana's evolving labour requirements. Additionally, it was discovered that graduates of the former polytechnics—now technical universities—had different roles from those of their regular university colleagues. The Ghanaian government recognized the incapacity of graduates and established the University Rationalization Committee (URC), which resulted in the polytechnics being promoted to tertiary rank after the PNDCL 321 (Alemna, 1992). In light of Ghana's evolving workforce requirements, the URC report serves as proof of a methodical attempt to plan the upgrading. The URC Sub- Committee reviewed existing institutions to ensure they could offer technical, and commercial education and training at the tertiary level before upgrading polytechnics to tertiary status through a series of discussions and consultations (GoG-URC, 1987).

In the wake of "The Industrial Development Policy" and the rapid advancement of technology in many fields, Ghana's polytechnic education system was first established as technical institutes that offered second-cycle craft courses to give young people the necessary skills for socioeconomic development (Alemna, 1992; Boakye, 2012). The government's focus shifted to economic development and education shortly after Ghana gained independence in 1957

(Nyarko, 2011). Accordingly, the "golden triangle" of Accra, Kumasi, and Takoradi was home to three technical institutions (Boakye, 2012). Later, in 1950, 1967, and 1968, respectively, more technical institutes were established in Tamale, Sunyani, and Ho (Agodzo, 2007). The technical institutes that offered non-tertiary programmes were reclassified as polytechnics in 1963. In 1984 and 1986, the Tamale and Ho technical institutes, respectively, received upgrades to polytechnic status. The Cape Coast Polytechnic opened in 1986 after being designed as a polytechnic (Nsiah-Gyabaah, 2005; Boakye-Agyeman, 2006). The University Rationalization Committee was established in 1987 to advance ideas for financing, academic organization, and administrative reform in Ghana's higher education system (GoG-URC, 1987) . Following the submission of the URC's report, the government released a white paper on tertiary education system reforms in 1991.

Following the enactment of the Polytechnic Law, 1992 (PNDCL 321), the White Paper elevated polytechnic education to a tertiary level in 1993 and 1994, allowing the six polytechnics in Accra, Takoradi, Kumasi, Ho, Tamale, and Cape Coast to offer Higher National Diploma Programs (Honyenuga, 2013). Sunyani was upgraded in 1997 as part of the government's plan to construct tertiary polytechnics in every region, and three more were founded in Koforidua, Bolgatanga, and Wa in 1997, 1998, and 1999, respectively (Boakye-Agyeman, 2006). Many countries worldwide have embraced TVET programmes for strategic demands, hence addressing skills mismatches or shortages in the labour market (Mwaura et al., 2022). Amankwah, (2011) supported this claim by highlighting the benefits of industrial attachment for TVET programmes and placing it within the scope of the CBT programme as a crucial curriculum element that needs to be customized to facilitate a seamless transition from academia to the workplace.

The significance of industrial attachment programmes in enhancing the employability of HND Graphic Design graduates is also emphasized by Amponsah & Enninful (2020). In support of this, the Hesse (1991) report recommended the creation of the Student Industrial Attachment Programme (SIAP) and emphasized the significance of strengthening the connections between tertiary education and industry to develop skilled men for the middle-level manpower needs of this economy (Hesse, 1991; McCowan et al., 2016).

2.2.2 Visual Arts Programmes: An Aspect of TVET

TVET is a broad term used to denote education in technologies and related sciences (Olabanji & Oyebolu, 2013; Serumu, 2014). In Ghana the term is adopted for technical and vocational programmes such as HND programmes in Visual Arts, Engineering and Applied Science (Ansah & Kissi, 2013; Oteng et al, 2024). For instance, HND Commercial Art Programme was initiated at the erstwhile Takoradi Polytechnic is to equip the youth with technical and commercial skills suitable for employment and national development (Sarpong-Nyantakyi et al., 2020)). Being an aspect of visual arts education, it requires closer collaborations between the educational goals, requirements and training structures vis-à-vis labour markets requirements and expectations (Sarpong-Nyantakyi et al., 2020). These requirements are expected to promote employability and put the role of TVET in focus.

TVET programmes, including HND in applied science, engineering, and visual arts, are referred to by this title in Ghana. For instance, the former Takoradi Polytechnic launched the HND Commercial Art programme to give young people technical and business skills appropriate for employment and the advancement of the country. As part of visual arts education, it necessitates tighter coordination between training frameworks, prerequisites, and educational goals about the demands and expectations of the labour market. These standards are anticipated to increase employability and highlight the need for TVET.

2.2.3 The Nexus between Unemployment and Employability

According to Gijbels (2007) Unemployment is a long-standing issue and was allegedly one of England's primary economic issues during the 20th century. According to him, unemployment and employment are essential factors that serve as economic markers of any economy's health. Recent years have seen a rise in employability research, which has improved cooperation between the educational system, industry, and graduate employability (Nunfam et al., 2022). Employability concerns have emerged as a major concern in the global economy and are essential to development (Al-Qubati, 2021). Being employable is more than just landing a job. It goes beyond merely honing skills, abilities, or experience to help students land a job or advance in their existing career. It is about learning, and "ability" is prioritized over "employ" (Okolie et al., 2019). The study supports Al-Qubati (2021) by attributing unemployment to both insufficient skills in the job market, which results in a skills mismatch and an economy that is inelastic in its ability to absorb graduates.

According to McCowan et al. (2016), employability and employment are not the same thing, even though they are frequently used interchangeably. But employability and a host of other variables, including the status of the economy and, most importantly, the number of open positions, influence employment to some degree. Thus, it is conceivable that employability—which is more prevalent in recessive economies—is a byproduct of unemployment. According to Mayer et al. (2019) one of the biggest threats to sub-Saharan nations' economies is unemployment. The global epidemic of youth unemployment necessitates immediate action. In his discussion of the effects of

unemployment on young people, Owusu (2012) suggests that unemployment in Ghana is currently like a virus that infects healthy bodies and then ravages them beyond repair. Consequently, the consequences of unemployment are profound and manifest in several ways, including physical, emotional, and psychological. Owusu expands his research beyond the number of young people without jobs to include the phenomenon's catastrophic impact on nations. Since "the idle hand is the devil's workshop," young people without jobs are responsible for many evils, as the adage goes: "A hungry man is an angry man." An unemployed graduate can therefore participate in any type of anti-social activity.

In a related earlier study, Clark and Zukas (2012) noted that graduates in art and design demonstrate the fundamental kinds of interactive skills that companies primarily look for. These include the following: communication, teamwork, intelligence, openness to learning, and the capacity to learn; others include adaptability, self-motivation, and self-promotion. Clark and Zukas add that graduates with degrees in the arts possess the skills necessary to convince employers to hire them. This is because the majority of graduates are self-motivated and choose to work in the charitable and educational sectors, which are frequently low-paying or voluntary. As a result, Clark and Zukas (2012) support a remedy for underemployment or unemployment, which needs to be viewed in the framework of voluntarism. Voluntarism has been more popular in recent years due to its socioeconomic advantages. Along with reducing feelings of personal isolation, it also boosts self-esteem and confidence (Lough & Matthew, 2014). In Ghana, volunteering is a vital component of community service that aims to improve the lives of those who are most in need. Volunteer art teachers, for example, help students in elementary and special schools discover and grow their creative potential as they use visual expression (Aryeetey & Opai-Tetteh, 2012).

Given Ghana's "employability agenda," it is important to remember that art graduates have the "right to useful unemployment," as implied by Clark and Zukas (2012). Stated differently, unemployment may also be viewed as a purposeful tactic to give graduates enough time to consider their potential. To avoid misleading policymakers, it is crucial to identify the different occupations in an economy before conducting an unemployment census. It should be mentioned, though, that Ghana's economy is still in its infancy compared to certain affluent nations, where some recent graduates purposefully choose to pursue voluntary work instead of finding employment. According to Owusu (2012), most graduates would prefer to work full-time in paid positions immediately following their National Service, and very few would dare to work for themselves unless it were their only option for making a living. In line with Peiró et al. (2015), employability is also defined as a construct that emphasizes a person's work-centered flexibility that improves his or her capacity to locate and take advantage of job and career chances both inside and outside of the current workplace. Although this idea was first proposed in the 1950s, it was not until 40 years later that it truly took off (Bridgstock, 2009). As per Tsai (2013), there is no genuine consensus on what employability means, and as a result, there is no standardization in the concept's metrics. In such a case, there are numerous applications for this idea. He concludes that employability is a collection of accomplishments, knowledge, and character traits that increase a person's chances of landing a job and succeeding in their chosen field, which benefits the individual, the workforce, the community, and the economy (Nettey et al, 2024; Mensah et al, 2023).

Individual requirements for credentials, expertise, and social status are becoming more and more important as individuals view employability holistically. This concept is very subjective and depends on the context in which one finds themselves (Imeokparia & Kennedy, 2012). Therefore, it is hypothesized that employability is not dependent on a graduate's capacity to acquire a complete skill set as a prerequisite, but rather on how they compare to other job seekers (Imeokparia & Kennedy, 2012). The hiring criteria may also be harmful to the workers and the company overall because it is discriminatory and unjustified. For graduates of HND Graphic Design, it is crucial to maintain competency at all costs. Several factors influence their capacity to find, keep, or change employment. The ability of a person to find and keep a job is essentially the focus of employability as a construct. However, it encompasses a variety of qualities, including social networks, values, knowledge and abilities (McCowan et al., 2016). Due to its detrimental consequences on businesses, job seekers, and educators, the notion of employability has recently drawn significant attention from most governments (Gamboa & Peiro, 2016); Imeokparia & Kennedy, 2012). Beyond this, people, organizations, and societies are also quite concerned about it (Peiró et al., 2015); Aidoo & Mensah, 2024).

III. METHODOLOGY

The study evaluated the HND Graphics Design Programme run at the Takoradi Technical University (TTU) to determine the state of industrial attachment programme and its applicability to the world of work. Given (2008) describes programme evaluation as the systematic application of research to inform evaluative judgments. This study covered the systematic collection of empirical evidence about the experience, its features, and results of HND Graphics Design industrial attachment programme to make decisions about the quality or significance of the programme. Besides, the evaluation method employs multiple sources of evidence, which may include interviews, documents, field observation, archival records and physical artefacts that render it appropriate in the evaluation of the HND Graphic Design programme. These multiple sources can be employed to determine the consistencies of findings

from the evaluation case study (Yin, 2014). This study also employed the qualitative cross-sectional design to explore stakeholders of the industrial attachment programme for HND Graphic Design graduate in November, 2015 to gather in-depth interpretation of the state of the industrial attachment experience of the HND graduates from 2000 to 2013 academic years.

According to Leavy (2017) cross-sectional design collects data from a sample at a certain moment in time and is appropriate for analyzing academic programmes. While qualitative-based survey designs concentrate on interpretive descriptive accounts of a population under observation, quantitative-based cross-sectional survey designs produce data that enable statistical inferences about the population of interest or to compare subgroups within a population (Leavy, 2017; Allen, 2017). Semi-structured interviews and questionnaire was used in the data collection processes.

Population is the sum of all the groups of elements that are of significance to the research topic and to whom the research would be applied (Fraenkel & Wallen, 2009). In this study, the population constitutes a large and heterogeneous collection of key stakeholders of HND Graphic Design Programme at TTU. This comprised faculty members in the Department of Graphic Design Technology; industry-based supervisors for students on attachments and HND Graphic Design Programme from 2000 to 2013 for an in-depth interpretation of the phenomenon.

While it was not feasible to utilize a target population of a total of 2,298 participants the study employed purposeful, snowball and theoretical, sampling approach to select 35 faculty members affiliated with the DGDT, and 90 industry-based supervisors situated in Takoradi, Accra, Tema, and Kumasi, which serve as the center of modern graphic design businesses in Ghana for rich and relevant information on the phenomenon. The theoretical sampling technique was adopted because it is concept-driven and allows the researchers to find concepts that are relevant to the population or topic and allows for a thorough exploration of the study (Corbin & Strauss, 2008). The data was further developed into concepts, themes, and sub-themes for in-depth analysis (Kalu & Bwalya, 2017). The study employed multiple sources of data such as semi-structured face-to-face, interviews and focus group discussions evidence also provided the researchers the opportunity to have in-depth, close-up data which triangulated the data collecting methods for the study.

Data is considered to have been created using intellectual, analytic, and interpretive activities during the interviews rather than to have been collected (Given, 2008). By way of assessing the relevance of the industrial attachment Programme, the researchers interacted with the participants through in-person interviews and focus group discussions to construct primary data from the following key stakeholders: Ten (10) HND graduates were chosen for face-to-face interviews (FFI) and Six (6) focus group discussion (FGD). Five (5) senior members from the Graphic Design Department for face-to-face interview (FFI). Nine (9) Industry-based supervisors were sampled for face-to-face interviews (FTF). Data was analysed thematically into various sub-themes based on the objectives of the study.

IV. FINDINGS & DISCUSSION

4.1 Response Rate

The outcome of the face-to-face interview and focus group discussions were thematically analyzed to capture the unique patterns of themes that emerged from the data. The study outlines one overarching theme and three ensuing sub-themes as follows. The three sub-themes are benefits of industrial experience, challenges in acquiring industrial experience and suggested views to address challenges

4.1.1 Perceived Benefits of Industrial Experience and Their Role in Enhancing the Employability of HND Graphic Design Students at Takoradi Technical University

Benefits of industrial experience: According to the respondents, industrial internships give trainees priceless experience. Approximately one half of all respondents said that although the internship programme was important, it also had significant problems that prevented it from operating smoothly. A small number of respondents did, however, offer some perspectives to address issues that the industrial attachment programme presents. Graduates' responses, FGDRSP1, indicate that mentorship—which comes from industrial attachment experience—improves practical knowledge that is not taught in schools. The following response suggests this:

> *One finds themselves lacking when they graduate from school and start working since, they are unable to comprehend the work that is done in the sector. Not having the opportunity to do attachment makes the issue worse, but if you did, you learned these things* (FOGRSP5, a personal message, 2015, November 19 Accra).

According to the responses, Trainees who did not work in the graphic design business during their industrial attachment time had worse circumstances once they graduated. For example, IND FTFRSP 3, an industry-based supervisor, states that:

> *Trainees learn whenever they arrive for an internship and become proficient in the multimedia application by the time they leave the company* (INDFTFRSP 3 personal correspondence, 2015, November 19 Accra*).*

According to FGDRSP1 from graduates' participants, the internship period was seen as a chance for trainees to observe and interact with potential clients in a way that would improve customer relations, trainee competencies, and the ability of graduates to develop relationships with potential clients and nurture their resources. This assertion is illustrated in the response that follows:

> *Why don't I treat it as a learning field as I might not have all of these, even the client to work with? In addition to learning how to deal with clients, I'm also learning how to work with people, how to price jobs, and what kinds of jobs clients want. After working with that person, I might have saved and made contacts that I could use to get jobs, clients, etc. on my own* (FGDRSP 1 personal communication 2015, November 18, Accra).

The actual in-service training that encourages active involvement rather than theory is another advantage of the industrial attachment program. It became clear that the majority of trainees lacked access to technology, but exposure to industrial attachment programmes gives them the chance to practice using contemporary tools, technology, and skills.

> *They did not come with any gadgets but we allowed them to have access to the little we have so that they could have a firsthand information, the graduates said in their comments* (F2FJIA7, personal communication 2015, November 16, Accra).

Notwithstanding the apparent advantages of the industrial internship exercise, the results showed that the majority of trainees did not give the exercise the necessary importance because of the program. For example, in the following response, FTFRSP10, a graduate respondent, mentioned this:

> *The internship, which is a major component of the tertiary institution programme, is what I believe really aided me. However, most people occasionally fail to recognize its significance. I came to that realization, and it truly made a difference for me. As a result of being exposed to my passion, it made me understand how much more I could study. You will see that we truly began studying the programme during the attachments (internships) phase when you examine those currently working in the area*.

The majority of them focus on the 2-dimensional graphics.

> *My biggest help, in my opinion, was the internship, which is a significant part of the program at the higher university. On occasion, nevertheless, the majority of people overlook its importance. It was then I realized that it really changed my life. I became aware of my passion and realized how much more I could learn as a result. Examining those who are currently employed in the region will show you that we really started researching the program throughout the attachments (internships) phase. They are mostly concerned with the two-dimensional images*. (F2F.EMT10, personal communication 2015, November 19, Accra).

A critical look at the industrial attachment programme indicates that the internship programme could also be beneficial to hosting organisations. For instance, an industrial-based supervisor indicated that the interns form the source of their staffing and this is outlined in the following response:

> *We chose the internship as basis because we have confidence in the quality of the graduate that pass through your institution as I said, for the quality of the product, we have no doubt about them* (INDFTFRSP 4 personal communication, 2015, November 26 Accra*).*

4.1.2 Challenges Students Face in Securing and Completing Industrial Attachment Programs

Challenges in Securing Industrial Experience: About one half of the respondents intimated that despite the apparent advantages of the internship programme it also had some challenges. Access to some attachment sites was quite difficult as trainees had to commute and transport themselves from home to the workplace on daily basis just to secure some kind of hands-on training. However, not all the interns were lucky to secure their choice of placement. An interaction with FGDRSP5, from graduates, discloses that there is limited space for industrial attachment training across the length and breadth of the country. Hence FGDRSP5 said, "It is not every one who will get the chance to be in the industry." For instance, a graduate response, FTFRSP7, stressed on the quality of the industrial attachment exercise, which is missing as indicated in the response below:

> *As I looked around and did not get any place to do the attachment and time too was not on my side, I could easily go to a container where they do "printing" or photocopy since everyone calls himself a graphic designer because they can make a calling card. I can go there and say that I have done my attachment here and the supervisor will mark me. Yes, you have done it here because they do call cards, fliers etc. But Graphic Design is not only about these things* (F2FJIA7, personal communication 2015, November 16, Accra).

It was also discovered that some trainees were denied the opportunity to access industrial experience due to bad conducts and this is attested in the following graduate response:

> *In the unlikely situation, every trainee gets the opportunity to do internship here. I had my first attachment here but was denied the opportunity to come here the second time. When I arrived, I was told they were not picking interns from Takoradi Technical University (TTU) because previous year some interns came here and misbehaved. So, I had to get people to plead on my behalf."* (FOGRSP5, a personal communication, 2015, November 19 Accra).

On the blind side of industrial attachment exercise is the indifferent attitude of industrial partners which is often swept under the carpet. A case in point is when interns are unable to secure placement in an appropriate industry because organisations have reduced the number of intake or entirely put a ban on industrial attachment programme. Mgaya and Mbekomize (2014) admit that such instances arise due to the high cost of hosting attachment programmes. Hence students become frustrated and make do with any available placement they get in so far as the log book would certify that the students have undertaken the industrial attachment exercise. TTU needs to acknowledge the presence of challenges in the organization of internship programme so that pragmatic approaches can be applied to solve them. Hence the ensuing section outlines suggestions for addressing internship challenges.

4.1.3 Strategies for Enhancing the Effectiveness of Industrial Attachment Programs in Bridging the Gap between Education and Employment

Suggestions for Addressing Internship Challenges: To improve the attachment exercise, respondents from the industry made a few submissions on the organization of internship programme. It was also discovered that some faculty-based supervisors were not up to their task and this is indicated in the following response:

> *At a point in time, a supervisor came to Tema and wanted to see students. If a supervisor comes to one point and calls student to bring their assessment form to a point without going to meet them, how will he take information back to school? The last person was D. A. one day she was sick and the sister came asking for her log book for supervisor who was at Community 1 for it to be signed. Then I told her to tell the supervisor that if he wants a very good report then he should come otherwise I was not ready to release it. That was when he came in here. An elderly man, are they really interested in the students?* (IND FTFRSP 1, personal communication 2015, November 17, Tema).

This response supposes that there is some negligence on the part of some faculty members. The success of the attachment supervision depends to the large extent on all three stakeholders hence parties should ensure that the right attitude to work is enforced (Akomaning et al., 2011). FGDRSP2 however, suggested that the institution should find placement for interns to secure appropriate firms for them. A personal interaction with another respondent also indicated that the only challenge confronting the organization has been poaching and recommended for a closer collaboration between industry and institution. This point is indicated in the following response:

> *I think that it is the internship aspect of their training. There is a need for institutions to get closer to the industry and structure the internship in such a way that it really becomes part and parcel of the curriculum of various institutions* (INDFTFRSP 4 personal communication, 2015, November 26 Accra).

In summing up, this section has provided important insight into internship exercise that is key to promoting competence of students. However, the population of trainees is over and above what the industry can handle. Hence, some unfortunate students are unable to find attachment placements.

4.2 Cross-Sectional Quantitative Survey Design

The study also employed a cross-sectional survey design to quantitatively assess the questionnaire from Top-Up bachelor students in the 2023/2024 academic year. The study randomly selected 105 participants from 213 students who were HND graduates pursuing a Bachelor of Technology at TTU. The study utilized the Kobo Collect data application tool to gather and record the open-ended questionnaire data and analysed via Microsoft Excel. The findings in Table 1 show the view of respondents on the importance of industrial experience using frequencies (F) and percentage (%).

Table 1

View on the Importance of Industrial Experience

Responses	**F**	**%**
Yes	89	85%
No	16	15%
Total	**105**	**100%**

The study investigated the state of industrial attachment. On the issue of the benefit of industrial attachment, only 16 participants representing 15% indicated that they did not benefit from the industrial attachment programme. However, 89 participants representing 84.76% suggested that industrial attachment exercises provided invaluable experiential training that enabled trainees to link theory with practice.

4.2.1 Perceived Benefits of Industrial Experience and Their Role in Enhancing the Employability of HND Graphic Design Students at Takoradi Technical University

Table 2 presents findings on HND Graphic Design students' perceptions of industrial experience and its significance in preparing them for the job market.

Table 2

Participants View on Importance of Industrial Experience (IE)

Responses	**F**	**%**
IE has helped me in learning more skills and knowledge during industrial training	8	8%
IE has allowed me to apply what I have learnt in class to solve real-world design problems	3	3%
IE has made students to acquire more knowledge and skills	20	19%
IE has helped students and graduates to get more skills and apply them during practical art sessions	3	3%
IE prepares us for the demands of the industry as we prepare for the outside world	1	1%
IE helps students broaden their knowledge, know-how other companies do their things and also learn how to work under pressure	1	1%
IE helps students to gain experience with tools and materials	5	5%
IE allows me to grasp and explore other areas of the graphic design work	3	3%
IE has exposed me to the job market which helped in acquiring some professional skills and behaviour in preparing me for employment	3	3%
IE or training provides learners with skills and knowledge at the practical centre	2	2%
IE encourages learners to know more when it comes to practicals and promote subject understanding in class	2	2%
IE helps individuals to be time conscious	2	2%
IE helps graduates to have knowledge about how the industry operates and how to get used to new technology	1	1%
No importance	16	15%
IE has allowed me to learn, impart, explore and have the feel of some working experience on the field	4	4%
IE has helped students to be aware of industry's expectations	2	2%
IE gives me the opportunity to grasp and explore other areas of the graphic design work	3	3%
IE has helped students develop good relationship with clients and enhance their ability to work under pressure	1	1%
IE gives students an idea of the working environment, it important and a general perspective of the tools they will be working with	1	1%
IE has given me the opportunity to operate some equipment found in the commercial photo laboratory	1	1%
IE has made students see the differences between what is taught in school (class) and the reality in the world of Graphic Design	1	1%
IE has prepared me for the world and taught me how to correlate with other coworkers	2	2%
IE has equipped me on how to work on my study area by being time conscious and working under pressure	1	1%
IE gives students a better understanding of how the industry works	2	2%
IE exposes us to the industry and helps us to know how to handle tasks in the real-world	1	1%
IE helps students to learn how the graphic art industry operates in the outside world	2	2%
IE has helped me to have the opportunity to express what I have learned in class	1	1%
IE gave me the chance to learn what happens on the job market and also learn new techniques	2	2%
IE helps us get used to the technical aspects of the programme	1	1%
IE has helped me gain massive experience in the field which makes it a lot easier for students in the long-run	3	3%
IE has helped me be able to relate with clients better and understand them	1	1%
IE adds up to the knowledge acquired in the classroom	1	1%
IE exposes students to a new environment and equipment used in some field of study	3	3%
IE enables me to know more when it comes to practical and enhances what is taught in class	2	2%
Total	**105**	**100%**

The results indicate that the most widely recognized benefit of Industrial Experience (IE) was its role in enhancing students' knowledge and skills, with 19% of respondents highlighting this advantage. Additionally, 8% of participants acknowledged that IE helped them acquire more skills during training, reinforcing its importance in bridging the gap between theoretical learning and practical application. These findings align with studies suggesting that students recognize multiple advantages of industrial experience during their academic journey. These benefits include gaining hands-on learning opportunities (Renganathan et al., 2012), enhancing career relevance and

motivation (Marcketti & Karpova, 2014), and improving employability prospects (Kopsidas et al., 2013). Additionally, students tend to exhibit greater engagement and achieve higher-quality outcomes in projects that involve industry collaboration (Hurn, 2016). Industrial experience also helps bridge the divide between theoretical education and practical application, adding deeper significance to coursework (Marcketti & Karpova, 2014). However, the least acknowledged benefit was its role in preparing students for industry expectations, with only 1% recognizing it as a preparatory tool for professional work environments. Similarly, only 1% identified IE as helping them understand the differences between classroom teachings and real-world graphic design practices, suggesting that some students may have had limited exposure to industry-relevant tasks.

A concerning finding is that 15% of respondents saw no importance in IE, possibly due to unstructured placements, inadequate supervision, or internships that did not align with their career aspirations. This aligns with several claims from research that indicate that industrial attachment programs in Ghanaian technical universities encounter significant obstacles in adequately preparing students for the workforce. Research highlights key challenges such as inadequate funding, logistical constraints, poor supervision, and mismatched placements (Nunfam et al., 2022; Adjei et al., 2014). Additionally, some students face exploitation and instances of sexual harassment during their internships (Nunfam et al., 2022). Weak collaboration between universities and industries, along with ineffective program management, often leaves students with strong theoretical knowledge but limited practical skills (Boakye–Amponsah et al., 2020). Despite these challenges, industrial attachment remains essential for human capital development, acting as a bridge between classroom learning and workplace application (Boakye-Yiadom et al, 2025). Enhancing these programs requires greater investment in technical expertise, infrastructure, resources, and incentives to strengthen university-industry partnerships (Boakye–Amponsah et al., 2020).

The results suggest that while industrial attachment has the potential to improve employability, its impact is inconsistent, emphasizing the need for stronger academia-industry collaboration to ensure students receive meaningful, industry-relevant training. To maximize its effectiveness, universities should enhance internship placement strategies, ensuring that students engage in practical work that aligns with their academic training. Additionally, pre-internship training on workplace expectations and strengthened supervision mechanisms could help optimize the benefits of industrial experience. Addressing these challenges will be crucial in ensuring that industrial attachment serves its intended purpose of preparing students for the job market and reducing graduate unemployment.

4.2.2 Challenges Students Face in Securing and Completing Industrial Attachment Programs

The findings as presented in Table 3 explores the challenges HND Graphic Design students face in obtaining and completing industrial attachment programs.

Table 3

Difficulties Encountered by Trainees during Industrial Attachment (IA)

Difficulty	**F**	**%**
No difficulties	60	57%
Students are not allowed to perform tasks in the field of study	1	1%
Learning in class does not give much understanding like going to the industry to work	1	1%
Lack of technical know-how on how to operate within the industry	1	1%
There is no guarantee of graduates getting jobs at industries after gaining experience from them	2	2%
The Inability of the industries to accept training or receive training	1	1%
Inadequate equipment	1	1%
Insufficient time for attachment	8	8%
Unavailable quality machines	1	1%
Well-equipped companies do not accept students for industrial attachment unless it is based on “connection” (whom you know)	2	2%
High cost of operation	3	3%
Transportation costs	1	1%
Backing up with more practical	1	1%
Most students do not have opportunities to have a feel of the well-equipped industries but end up in new/ start-up with less or no equipment during attachment time.	1	1%
Lack of guidance or teachings	1	1%
Difficulty in being regular at work due to less financial support	1	1%
Inadequate capital and equipment	1	1%
Difficulty in finding a company where one can learn adequately	1	1%
Students are not allowed into certain departments	3	3%
Most students do not attach much importance to it. This has made a lot of companies reluctant to it accept interns	1	1%

Outdated things are taught in class; hence this makes it difficult for students to work in the industry	2	2%
Limited industrial partnership in organising attachment placements	1	1%
Lack of more experienced people in business / industry	1	1%
Despite the industrial advancement, the curriculum for studying is not updated to suit the industry	2	2%
Students lack experience with some equipment in the industry	2	2%
Students are rather sent on errands instead of being trained	1	1%
No access to such equipment to help interns learn more when we come back to campus	1	1%
Things taught in class are different from the field	1	1%
Students do not have access to machines to apply their knowledge	2	2%
Total	**105**	**100%**

The findings reveal that the most frequently reported response was the absence of difficulties during industrial attachment, with 57% of students stating they encountered no major challenges. This suggests that for more than half of the participants, their internships provided a relatively smooth and beneficial experience. However, among those who faced challenges, the most cited difficulty was the insufficient duration of the attachment, affecting 8% of respondents. This aligns with studies by Boakye–Amponsah et al. (2020) and Nunfam et al. (2022), which highlight that short internship periods limit students' ability to gain in-depth industry knowledge and practical expertise. Additionally, some students (3%) reported not being allowed to work in certain departments, while 2% indicated that well-equipped companies only accepted interns based on personal connections rather than merit. This reinforces concerns raised by research indicates that many students face considerable challenges in securing industrial attachment placements (Owusu-Acheampong et al., 2014). This struggle is intensified by competition from students of other institutions and financial constraints (Effah et al., 2014). Additionally, the absence of a strong legal and regulatory framework for industrial training, along with limited internship opportunities within industries, further worsens the situation (Nyarko & Amegbor, 2019). Furthermore, 2% of respondents noted that outdated academic curricula made it challenging to transition into modern industry settings. In support, studies suggest that outdated academic curricula create obstacles for graduates adapting to contemporary industry environments. For example, geoscience education does not fully align with the evolving demands of academia, government, and industry (Mikeš, 2015). Likewise, power electronics programs in certain institutions do not equip students with the in-depth knowledge essential for industry needs (Issa et al., 2023).

At the lower end, several difficulties were reported by only 1% of students, including a lack of technical know-how, inadequate equipment, and industries refusing to accept trainees. Additionally, some students highlighted the challenge of being used for errands instead of being trained, further questioning the effectiveness of some attachment programs. These findings mirror those of Boakye-Yiadom et al (2025), who found that weak academia-industry collaboration often results in poorly structured internships where students perform menial tasks instead of gaining hands-on experience. Given that industrial attachment is meant to bridge the gap between theoretical knowledge and practical skills, these challenges highlight the need for improved internship placement strategies, stronger industry partnerships, and curriculum revisions to align with industry demands. Addressing these issues will be crucial in ensuring that technical university graduates acquire the skills needed to transition seamlessly into the workforce.

4.2.3 Job Readiness of Students and Graduates and the Factors Contributing to Their Preparedness or Lack Thereof

This section assesses the job readiness of HND Graphic Design students and graduates, focusing on factors influencing their preparedness for employment. The findings were presented in Table 4.

Table 4

Degree of Job Readiness of Students/Graduates

Degree of Job Readiness	**F**	**%**
Not job ready	42	40%
Somewhat job ready	11	10%
Job ready	47	45%
Highly job ready	5	5%
Total	**105**	**100%**

The results indicate that the majority of students and graduates (45%) perceive themselves as job-ready, with an additional 5% considering themselves highly job-ready. This suggests that half of the respondents believe they possess the necessary skills and knowledge to transition into the workforce. These findings align with Ababio et al. (2024), who reported that a significant proportion of Technical and Vocational Education and Training (TVET)

graduates in Ghana find employment or engage in self-employment due to the practical orientation of their training. However, the presence of 40% of respondents stating they are "not job ready" raises concerns about the effectiveness of the industrial attachment program in fully preparing students for employment. This is consistent with a study by Mohammed (2020), which highlights gaps in curriculum alignment with industry needs and insufficient workplace exposure as key contributors to graduate unemployment in Ghana. Additionally, 10% of students identified as "somewhat job ready," further underscoring the variation in preparedness levels among graduates.

At the lower end, only 5% of students classified themselves as "highly job ready," suggesting that very few feel fully confident about their transition into the job market. This finding supports the argument by Boakye–Amponsah and Enninful (2020) that technical university students often face challenges in developing the confidence and competency needed for immediate employment. Several factors could explain these discrepancies, including the limited duration of industrial attachment, outdated curricula, and restricted access to advanced industry tools and technology. Furthermore, Nunfam et al. (2022) found that inadequate mentorship and supervision during internships contribute to gaps in job readiness. The results emphasize the need for enhanced collaboration between universities and industries to provide more structured, skill-oriented internships that improve students' transition from education to employment. Strengthening career guidance, refining curricula to match industry advancements, and ensuring equitable access to quality internships could significantly improve the job readiness of graduates.

Table 5

Reasons for Lack of Job-readiness among Students

Reasons	**F**	**%**
Lack of resource materials and poor curriculum system	3	7%
Lack of skills and experience	7	17%
No reason stated	22	52%
Only a few graduates establish after completing and starting to build more experience to compete with other companies and businesses	1	2%
Graduates state that what is taught in lectures is different from the realities in the industry	1	2%
Lack of Productivity from Graduates	1	2%
Lack of knowledge in the field of study	1	2%
Graduates do not have an in-depth understanding of business operations and how to relate with clients	1	2%
Inadequate knowledge of the use of software	3	7%
The quality of courses taught makes students uninterested in acquiring the necessary skills and knowledge which will prepare them for the job market	1	2%
Low standard of certificates in the industry or job market	1	2%
Total	**42**	**100%**

The results reveal that a significant proportion (52%) of respondents who indicated a lack of job readiness did not specify any reason. This suggests either a lack of self-awareness regarding their unpreparedness or an unwillingness to disclose perceived shortcomings. Among those who provided explanations, the most frequently cited reason was a "lack of skills and experience" (17%), reinforcing findings from Boakye–Amponsah et al. (2020) and Nunfam et al. (2022), who argue that limited practical exposure remains a key challenge for technical university graduates in Ghana. Additionally, 7% of respondents attributed their lack of job readiness to a "lack of resource materials and a poor curriculum system," aligning with the concerns raised by Mohammed (2020) about gaps between academic training and industry demands. A further 7% reported "inadequate knowledge on the use of software," highlighting the need for greater emphasis on digital tools and industry-relevant technical training.

On the lower end, individual respondents pointed to more specific challenges, such as a lack of productivity among graduates (2%), a lack of in-depth understanding of business operations and client relations (2%), and differences between lecture content and industry realities (2%). These findings mirror concerns raised in studies like Dondofema et al. (2020), which suggest that misalignment between academic training and industry expectations leads to lower employability rates. The issue of "low standard of certificates in the industry or job market" (2%) also suggests that some students feel disadvantaged due to industry perceptions of technical university qualifications. Overall, the results emphasize the need for curriculum revisions that integrate industry-oriented skills, hands-on training with modern tools, and stronger collaborations between educational institutions and businesses to enhance graduate job readiness.

V. CONCLUSION & RECOMMENDATION

5.1 Conclusion

The Industrial Attachment Programme plays a crucial role in bridging the gap between academic learning and industry demands, offering students practical exposure to enhance their employability. This study highlights the challenges faced by Higher National Diploma (HND) Graphic Design students at Takoradi Technical University in securing and completing industrial attachments, as well as their varying levels of job readiness. While a significant proportion of students perceive themselves as job-ready, a notable percentage remain unprepared, largely due to inadequate industry partnerships, outdated curricula, and limited hands-on training opportunities. These findings emphasize the urgent need for more structured and industry-aligned attachment programs to equip graduates with the skills necessary for a competitive job market.

To maximize the impact of industrial attachments in reducing graduate unemployment, technical universities must strengthen collaboration with industry stakeholders, ensuring that students gain relevant, high-quality practical experience. Additionally, curriculum reforms should focus on integrating emerging industry trends and digital competencies to enhance students' adaptability. Expanding mentorship programs, improving internship supervision, and providing financial support for students in need will further enhance the effectiveness of industrial training. Future research should explore innovative work-integrated learning models and the long-term impact of industrial attachments on graduate employment outcomes. Strengthening these initiatives will position industrial attachment as a powerful strategy for addressing graduate unemployment in Ghana's creative industries.

5.2 Recommendations

Takoradi Technical University (TTU) must recognize the existing challenges in organizing industrial attachment programs and implement strategic solutions to address them. To enhance the effectiveness of these programs, the Quality Assurance Unit should empower trainees to assess attachment sites, enabling the Industrial Liaison Office to exclude industries that fail to meet institutional training standards. This would ensure that students are placed in environments conducive to skill development. Additionally, the government could establish Design Centres where trainees can access advanced machinery at subsidized fees, allowing them to produce and sell artworks while fostering professional networks and business collaborations. Furthermore, the introduction of state-owned, state-of-the-art Press and Design workshops would provide graduates with advanced technical training, bridging the gap between education and industry demands. Encouraging non-governmental organizations (NGOs) to invest in student training would also enhance private sector participation, ensuring sustainable and industry-relevant skill acquisition for graduates.

The findings of this study underscore the need for policymakers to strengthen the regulatory framework governing industrial attachment programs in Ghana. A structured policy that mandates industry participation in student training, offers incentives for companies to accept interns, and ensures standardized supervision would enhance the effectiveness of these programs. Additionally, policies should focus on integrating emerging industry trends into TVET curricula to align with evolving job market demands.

For higher education institutions and industry stakeholders, the study highlights the importance of enhancing collaboration between academia and industry. Universities must establish stronger partnerships with well-equipped firms to provide students with hands-on experience using industry-standard tools. Internship supervision should be improved to ensure students are actively engaged in relevant tasks rather than being underutilized. Companies should also recognize industrial attachment as a talent pipeline, offering mentorship and structured training programs to prepare students for seamless transitions into employment.

The study contributes to the growing body of knowledge on work-integrated learning in technical and vocational education. It highlights key challenges such as limited placement opportunities, curriculum gaps, and inadequate mentorship, which warrant further investigation. Future research should explore how industry expectations align with student competencies and how digitalization can be leveraged to enhance practical training. Comparative studies across different technical universities and industries would provide broader insights into best practices for industrial attachment programs.

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