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Skills' Utilisation of Government Technical College Graduates Towards Self-Employment in Dar es Salaam City, Tanzania

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Abstract

This study investigates the skills' utilisation of government technical college graduates towards self-employment in Dar es salaam, Tanzania. The study used a mixed research approach and explanatory sequential design. The study had a sample of 200 respondents namely technical graduate students, deputy rectors academic and tutors from three selected technical institutions. Data collection was done through questionnaires and interviews, and data were analysed thematically (for qualitative data) and descriptive analysis (for quantitative data). The findings revealed that 70% of technical graduates had positive perceptions in applying acquired knowledge and skills for potential self-employment, technical graduates had confidence to apply their acquired knowledge and skills in self-employment aspects and technical education prepared graduates to identify and address market demands and opportunities as part of their potential self-employment. Moreover, while majority of graduates recognised potentials in utilising theoretical skills in daily settings, 30% of the respondents acknowledged practical gaps

in applying acquired theoretical knowledge. Based on the findings, the study recommends that technical institutions should establish startup incubation hubs and create public-private financing mechanisms for college graduates' start-ups.

Keywords: *Self-employment, technical college graduates, skills' utilisation*

Introduction

Globally, the issue of graduate self-employment has led to increased interaction between governments and technical institutions, as these institutions must better prepare graduates with employable and entrepreneurial skills (Mengistu & Negasie, 2022; Tahir, 2025). This has resulted in various discussions surrounding the topic of graduate self-employment. One aspect of this discourse focuses on whether technical institutions should ensure their graduates are ready for employment (Nugraha, Kencanasari & Nuril, 2020). Another aspect examines how these institutions can facilitate self-employment opportunities for their graduates (Biemans, 2023). Additionally, there is a discussion regarding the essential skills that contribute to graduate self-employment (Colline, 2023).

Self-employment has become an increasing focus of attention from governments and educational bodies around the world (Eze, Ezenwafor & Igberaharha, 2016). The emphasis stems from the increasing proportion of technical graduates in the quest for employment, unlike self-employment (ILO, 2023; Sandra, 2022). Theoretically, the concept of self-employment is a function of an individual's knowledge, skills and abilities (KSA). A central problem for students is to grasp which competencies are needed to work as a freelancer (Eurostat, 2023; Vianny, 2020).

Specifically, in the technical education field, the emphasis is placed on training graduates for employment in the economy (Bridgstock 2017; Nugraha, Kencanasari & Nuril 2020; Osmani, Weerakkody, Hindi & Eldabi 2019; Rowe & Zegwaard 2017; Zegwaard, Campbell & Pretti

2017). Thus, there is always pressure on technical colleges to take measures so that their students are not only employable but also have self-esteem. However, the issue which comes up is whether this should be regarded as the main emphasis (UNESCO, 2018). Hence, the pressure of the obsolescent tendencies to educate graduates for self-employment is stressful, and several institutions are working hard to encourage their internal programs to be broader and market-oriented (Mtawa, Fongwa & Wilson-Strydom, 2019).

In Tanzania, the National Council for Technical Education (NACTE) was established through the Act of Parliament Cap 129 (No. 9 of 1997) to oversee and coordinate technical education and training in all non-university institutions throughout the country (Luhala & Yuting, 2021). Technical institutions in Tanzania have effectively accommodated a considerable number of secondary school graduates, contributed significantly to the country's middle-level workforce, and shown great potential for self-employment and informal sector activities (Haji, 2015). The World Bank (2018). Notably, new educational initiatives aimed at technical institutions are designed to improve self-employment opportunities for graduates. Thus, it is clear that the growth of technical institutions in Tanzania plays a crucial role in enhancing employment rates by encouraging self-employment among graduates. Haji (2018) highlights those technical institutions in Tanzania, as described in the Technical Education and Training Act of 1996, are designed to provide young people with the essential knowledge, skills, and attitudes needed to contribute to the socio-economic development of their communities and the nation. Haji (2018) also points out that graduation rates in these institutions differ due to factors such as the length of programmes, enrolment capacity, resource availability, and student demographics. However, these rates are negatively impacted by challenges like insufficient infrastructure, limited funding, misalignment of the curriculum with market needs, and issues related to student retention

(World Bank, 2018). Additionally, societal and economic factors, including job opportunities outside of academia, influence students' decisions about completing their programmes. Efforts to enhance graduation rates typically concentrate on improving educational quality, offering financial support, encouraging student engagement and support services, and tackling broader socio-economic barriers to education and employment (Haji, 2018).

According to Fields (2019), the skills that graduates acquire for self-employment should be applied to entrepreneurship. It is increasingly clear that entrepreneurship can be learned. Drucker (2015) notes that entrepreneurship is a long-standing practice, and its fundamental importance to economic growth and development has been demonstrated through research, bridging theory and practice. This is akin to the established fields of management and technology. The National Youth Entrepreneurship Attitude Survey in Australia reached a similar conclusion, highlighting training and communication activities as significant contributors to positive entrepreneurial outcomes (Czuchry & Yasin, 2018).

The significance of entrepreneurship education is based on the premise that entrepreneurs need to tackle the socioeconomic challenges facing the country (Ciputra, 2021). The relevance of entrepreneurship courses in technical education can be linked to two main factors. First, job opportunities are scarce in the market. Thus, the aim of teaching entrepreneurship courses is to motivate students to create jobs and address the unemployment issue. Second, students should shift their mindset from seeking employment to starting their businesses after graduation. In summary, entrepreneurship education fosters skill development and encourages a shift in mindset from job searching to job creation (Wilson & Sepulveda, 2020).

According to Bonet, Armengot, Miguel and Martin (2021), individuals with entrepreneurial traits are often motivated to pursue self-employment due to their self-confidence, creativity, dynamism, leadership skills, flexibility, risk assessment abilities, interpersonal skills, independence and initiative. These individuals typically exhibit a strong desire to succeed, optimism, a profit-oriented mindset, perseverance, a clear sense of purpose and a willingness to accept criticism and new ideas. However, as Bonet et al. (2021) point out, fostering innovation may not solely stem from teaching entrepreneurship to certain students in technical institutions.

A key benefit of entrepreneurship is that it provides large-scale, rapid employment opportunities for the unemployed, which is a persistent challenge in developing countries like Tanzania. Additionally, entrepreneurs play a vital role in wealth creation and distribution, promoting a fair transfer of wealth and income that benefits a broader segment of society. Graduates from technical colleges who engage in entrepreneurial ventures also generate new jobs and have a positive impact on the economy. Finally, by adopting the latest advancements in mass production of various goods and services at lower costs, they improve their standard of living (Kumar, 2021).

UNESCO (2016) highlights the crucial role that technical education and training play in enhancing the quality and efficiency of the workforce, boosting productivity, improving the quality of goods and services, fostering technological progress, and enhancing problem-solving skills. In this light, it is evident that technical institutions in Tanzania are tasked with providing students with the knowledge and skills necessary for self-employment after graduation (NBS, 2019). Unfortunately, this goal has not been achieved, as many graduates continue to depend on government jobs, which offer limited employment opportunities. Despite of the existing studies on graduate employability and entrepreneurship yet the extent to which government college graduates apply their acquired skills

in pursuing self-employment remains under explored. Thus, this study investigates the skills' utilization of government technical college graduates towards self-employment in Dar es salaam, Tanzania.

Methodology

The study investigated skills' utilisation of government technical college graduates towards self-employment in Dar es salaam, Tanzania. The study employed the mixed approach as a method of inquiry to get more insights on how government technical college use the skills they have learned to start or manage their own businesses in Dar es salaam City. This study employed an explanatory sequential design. The explanatory sequential design enhanced the potential of mixed methods to address research questions more effectively than other approaches. Data were collected through questionnaire and interviews to get more on the study under investigation. Interview sessions took between thirty to fifty minutes and were recorded through digital voice recorder devices, and hand note-taking was used. Before recording, participants were asked for their consent. Data for the study were collected from Dar es Salaam city only because it has a significant number of technical institutions, allowing for the gathering of sufficient information from technical graduates related to the studies in question. This city was purposively selected because it anticipated getting enough technical graduates from technical institutions who participated in the study. The purposive sampling technique was applied to select deputy rectors and lecturers. Moreover, simple random sampling technique was used to select lecturers. A total of 15 lecturers and 3 Deputy director academics were interviewed to get qualitative data. On the other hand, snowball sampling technique proved to be an effective approach for examining skills' utilization of government technical college graduates towards self-employment in Dar es salaam, Tanzania. Thus, the researcher created self-developed questionnaires for collecting quantitative data where a total of 182 Likert-scale questionnaires were

distributed to the respondents (technical graduates) to collect their opinions and beliefs.

The qualitative data were analysed using the thematic approach proposed by Braun and Clarke (2013), whereby appropriate themes were identified, described, and illustrated by the quotes of participants. Quantitative data were analysed using Microsoft Excel 2007 and Statistical Package for Social Sciences (SPSS) whereby tables, figures and graphs were generated. Before commencing data collection, a research permit was obtained from the respective authorities. After that, informed consent to conduct the study was also obtained from the respective sources. Confidentiality of the information gathered and anonymity of the respondents was ensured.

Results and Discussion

This study aimed to investigate skills' utilization of government technical college graduates towards self-employment in Dar es Salaam city, Tanzania. Data was collected through questionnaires and interviews. The themes that emerged are presented, analysed and discussed in the following sections.

Graduates Confidence in Utilizing Acquired Skills for Self-Employment

The findings showed that the majority of the respondents (64.08%) agreed that graduates confidently felt about the practical usability of the knowledge and skills acquired during technical education for potential self-employment while 30.01% disagreed and 5.91% remained neutral as shown in Figure 1.1. Quantitative results revealed that graduates of technical programmes confidently felt about the practical usability of the knowledge and skills acquired during technical education for potential self-employment.

The qualitative findings revealed that graduates from technical programmes felt confident about the practical application of the

knowledge and skills they gained during their education, particularly for self-employment. Technical education was essential in developing problem-solving and critical thinking abilities, which were vital for successful entrepreneurship and managing a business independently. Through hands-on learning experiences, students learned to tackle challenges with both creativity and analytical thinking. This equipped them to identify issues, evaluate various solutions, and apply the most effective strategies in real-life situations, as one participant stated:

> Entrepreneurs frequently encounter unpredictable situations that require to make swift, informed decisions, and technical education provides them with the necessary tools. Whether it is resolving technical problems or enhancing business operations, critical thinking skills enable to adjust to evolving circumstances and manage complex business environments. Furthermore, these abilities are crucial for effective resource management, fostering innovation, and improving efficiency, all of which are vital for maintaining and expanding a business in competitive markets after graduation (Interview with Deputy Rector-Academic, Institution C).

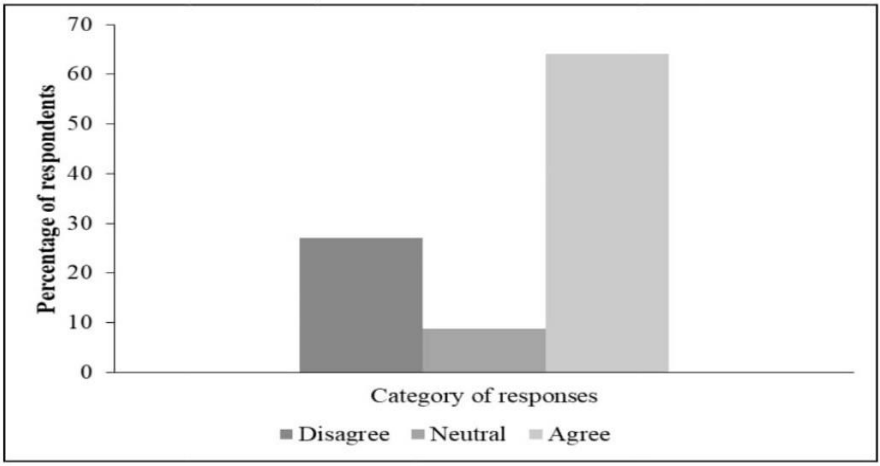

Figure 1.1: Graduates Confidence in Utilizing Acquired Skills for Self-Employment

The quote underscores the importance of technical education in providing entrepreneurs with the vital skills needed to navigate the complexities of

business management. It pointed out two main aspects: First, the necessity of critical thinking and problem-solving abilities to address unexpected business challenges. Second, how these skills contributed to optimising operations, enhancing resource management and fostering innovation, all of which were essential for business growth. The adaptability developed through technical education equipped entrepreneurs to tackle both technical and business obstacles, positioning them for success in competitive markets.

The findings align with Sharma and Sen (2019), who discovered that entrepreneurs with a technical education background excelled in addressing operational challenges, which in turn fostered greater business growth. Contrarily, it was found that some graduates of technical programmes lacked confidence in the practical application of the knowledge and skills they gained during their education, particularly regarding self-employment. This uncertainty stemmed from their insufficient development of critical thinking and problem-solving skills, which were crucial for navigating the complexities of running a business independently. This aligns with the findings of Adelekan and Oladipo (2019), who noted that graduates without strong problem-solving skills may face difficulties in tackling unexpected challenges related to product development, financial management, or customer relations.

Generally, the findings indicated that graduates often struggled with self-employment challenges, such as product development and financial management, due to a lack of strong problem-solving and critical thinking skills. Finally, equipping graduates with strong problem-solving abilities is vital for their success in entrepreneurship.

Graduates' Perceptions of Skills applicability to Self-Employment and Entrepreneurship

The findings showed that the majority of the respondents (63.18%) agreed that graduate's perceptions of their acquired knowledge and skills were directly applicable to their self-employment plans or entrepreneurial aspirations while 25.82% disagreed and 11% remained neutral as shown in Figure 1.2.

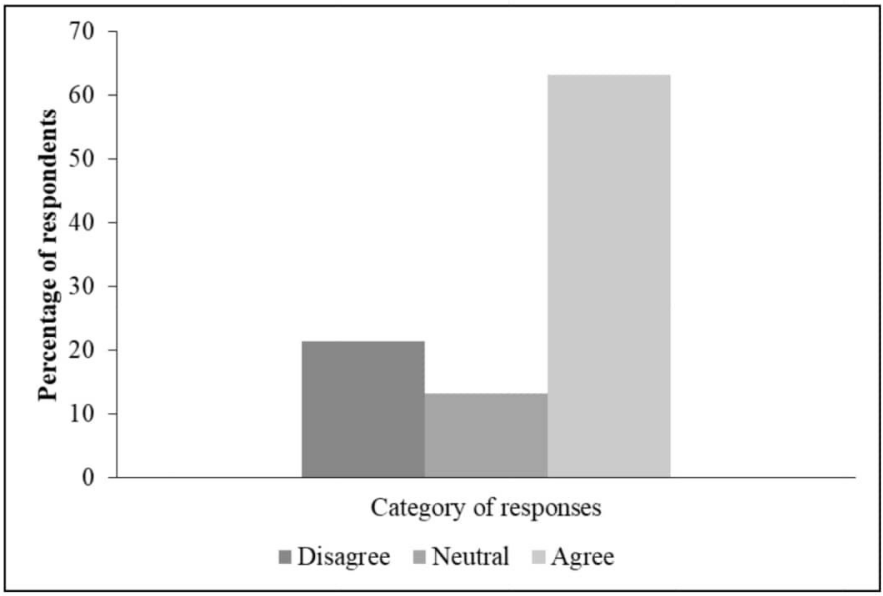

Figure 1.2: Graduates' perceptions of skills applicability to self-employment and entrepreneurship

The findings above indicated that technical graduate's perceptions of their acquired knowledge and skills were directly applicable to their self-employment plans or entrepreneurial aspirations. The findings resonate with those of Hansen and Mattes (2018), who discovered that graduates possessing the appropriate skill set are more adept at navigating the complexities of entrepreneurship.

While some graduates felt positive about how their knowledge and skills could be applied to their self-employment goals or entrepreneurial dreams,

others had a more negative view. Furthermore, the absence of entrepreneurial training like business management, marketing, or financial planning created a disconnect between their technical skills and the abilities needed to successfully launch and manage a business. These findings align with Von Nordenflycht (2020), who noted that graduates lacking internship opportunities or industry exposure during their studies might struggle to transition into self-employment, questioning their ability to compete in the market.

From the findings, one can conclude that the lack of internships or real-world experience made graduates feel unready for self-employment, leading to doubts about their chances of thriving in a competitive market.

Challenging Disciplines for Applying Graduate Skills in Self-Employment

The findings showed that the majority of the respondents (63.73%) agreed that there were specific areas or disciplines where graduates believed the usability of the acquired knowledge and skills for self-employment might be more challenging, while 20% disagreed and 17.27% remained neutral as shown in Figure 1.3.

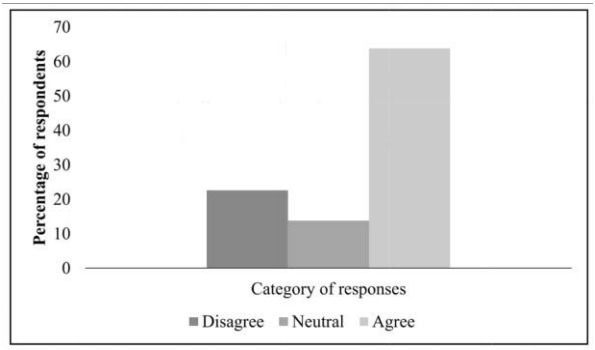

Figure 1.3 Challenging Disciplines for Applying Graduate Skills in Self-Employment

The quantitative findings show that technical graduates believed that there were specific areas or disciplines where graduates believed the usability of

the acquired knowledge and skills for self-employment might be more challenging. These findings suggested that some technical fields provided more direct, practical applications for self-employment, while others were perceived as less conducive to entrepreneurial endeavours. During an interview, one of the respondents was quoted as:

> Certain technical disciplines can provide graduates with practical skills that are more readily applicable to self-employment. For example, areas like mechanics, IT, or construction often involve skills that can be utilized independently with relative ease. On the other hand, fields such as chemical engineering or other highly specialized technical areas may pose greater challenges for launching a business, primarily due to the intricate resources, infrastructure, or market demands involved (Interview with Tutor, Institution A).

The text indicates that the relevance of technical education to self-employment differs greatly among various fields. For instance, disciplines like mechanics, information technology (IT), and construction equipped graduates with practical skills that could be readily applied in independent business ventures. These sectors typically involved hands-on tasks that were in high demand, allowing graduates to effectively use their training in real-world contexts, which facilitated a smoother transition to self-employment. On the other hand, areas such as chemical engineering or other highly specialised technical fields presented more significant hurdles for graduates looking to launch their businesses.

The findings are in tandem with Mok and Wong (2018), who discovered that vocational training in areas like mechanics and IT significantly boosts graduates' confidence and readiness for self-employment, especially when compared to those in more specialized fields.

Graduates' opportunities to apply their technical knowledge and skills in real-world settings

The findings showed that the majority of the respondents (65.38%) agreed that graduates had opportunities to apply their technical knowledge and skills in real-world settings while 20.02% disagreed and 14.6% remained neutral as shown in Figure 4.27.

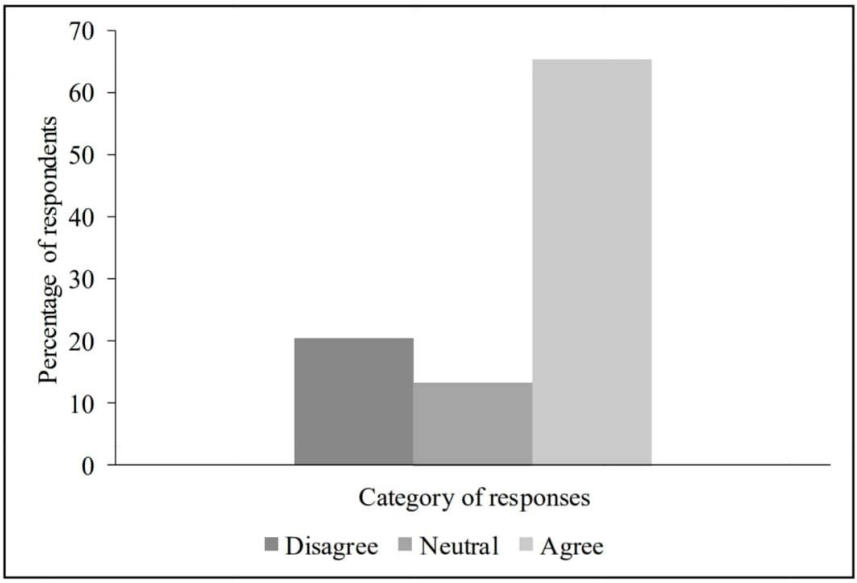

Figure 1.4: Graduates' opportunities to apply their technical knowledge and skills in real-world

The quantitative findings revealed that, technical graduates had opportunities to apply their technical knowledge and skills in real-world settings. The findings suggested that technical graduates benefited significantly from practical experiences, enhancing their skill application, employability, confidence and overall readiness for the workforce or entrepreneurial endeavours.

The findings indicated that certain specialized technical fields offered fewer real-world opportunities for students, especially in niche areas with limited industry presence. In these situations, the demand for skilled professionals was insufficient to generate a wide range of opportunities

for students to utilize their technical knowledge and skills. One of the respondents was quoted as:

> The narrow focus of these industries could limit the range of practical applications accessible. For instance, if a student is studying a specialized field of chemical engineering that centres on a particular type of polymer not yet widely used in the industry, they may find it challenging to discover opportunities to apply their skills (Interview with Tutor, Institution D).

The findings concur with Suryanto and Subandi (2020) who noted that students in technical programmes often struggle to secure relevant industry placements, especially in specialized fields, which hampers their ability to apply practical skills.

Thus, from the findings, it appeared that students in specialized technical programmes encountered considerable difficulties in obtaining relevant industry placements, which hindered their capacity to effectively apply practical skills. The gap between the specialized skills of graduates and the demands of the job market further restricted their employability, underscoring the necessity for educational reforms.

Technical Education and Market-Driven Self-employment Readiness

The findings showed that the majority of the respondents (67.03%) agreed that technical education prepared graduates to identify and address market demands and opportunities as part of their potential self-employment while 20.17% disagreed and 12.8% remained neutral as shown in Figure 1.5.

The majority agreed that technical education prepares graduates to identify and address market demands and opportunities as part of their potential self-employment. Some respondents expressed disagreement with the idea that technical education effectively equipped graduates to recognize and respond to market demands and opportunities for self-employment. They

argued that certain technical programmes did not place enough emphasis on entrepreneurship or business management skills. As a result, graduates felt that while they had acquired technical expertise, they lacked sufficient training in starting and managing a business, which left them ill-prepared to seize market opportunities. The findings resonate with Khan, Nadeem, and Rashid (2019) who observed that the educational system mainly prepares students for traditional jobs instead of providing them with self-employment skills, contributing to high unemployment rates among graduates.

Thus, from the findings, it is acknowledged that the current educational system mainly aimed to prepare students for traditional jobs, which has created a noticeable gap in self-employment skills. Many technical programmes did not include a robust entrepreneurial curriculum, leaving graduates feeling unready to tackle market challenges and start their businesses.

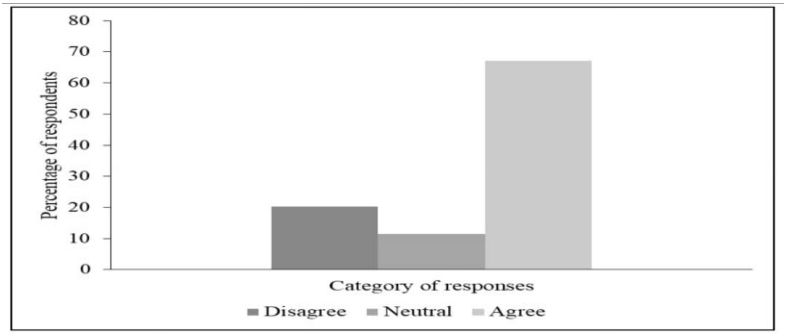

Figure 1.5: Technical Education and Market-Driven Self-employment Readiness

Gaps between Theory and Practice in Technical Education for Self-Employment

The findings showed that most respondents (67.03%) agreed on potential gaps between the theoretical aspects of technical education and their practical application in real-world self-employment while 25.93%

disagreed and 7% remained neutral as shown in Figure 1.6. The quantitative findings show that technical graduates knew the presence of potential gaps between the theoretical aspects of technical education and their practical application in real-world self-employment.

On the other hand, qualitative findings indicated that when technical graduates recognized the potential gaps between the theoretical components of their education and their practical application in self-employment, they cultivated a mindset of adaptability. This understanding helped them realize that real-world scenarios often demand creative problem-solving. Such awareness prompted them to critically assess how to leverage their knowledge to tackle practical challenges in their self-employment endeavours. These results align with the work of Wang and Zhu (2020), who discovered that graduates from technical institutions who acknowledged the disparity between theoretical knowledge and its real-world application were more inclined to pursue lifelong learning and skill development. This adaptability and awareness empowered them to effectively manage self-employment challenges, especially in engineering and information technology fields.

From the findings, one can say that the fast-paced technological advancements in the IT and engineering fields have led to a considerable skills gap for graduates. Educational institutions have had difficulty updating their curricula to meet the evolving needs of the industry. As a result, many graduates felt ill-equipped to handle the challenges of contemporary workplaces, especially in high-tech sectors, due to their reliance on outdated theoretical knowledge. This situation has required employers to provide additional training to ensure that new hires are proficient in emerging technologies.

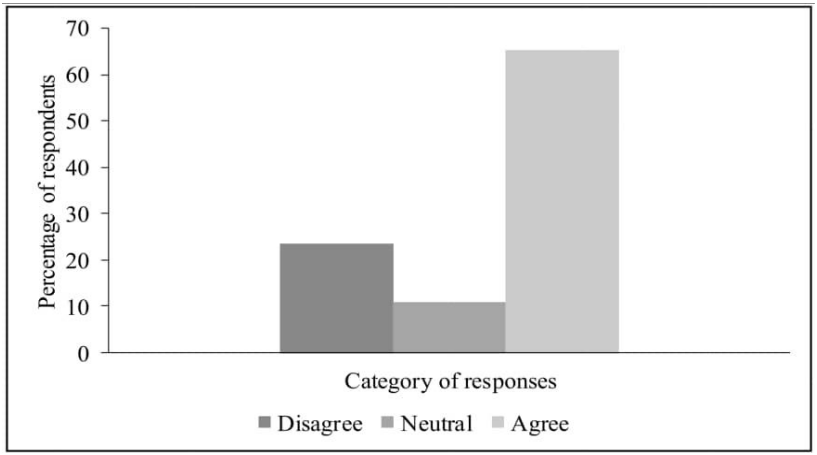

Figure 1.6: Gaps between Theory and Practice in Technical Education for Self-Employment

Conclusion

In conclusion, the study' findings reveal systemic gaps in aligning technical education outcomes with demands of self-employment and the broader labour market. While College graduates demonstrate foundational competence, they often lack entrepreneurial readiness, access to capital, and real-world business mentorship. These findings underscore the urgent need for a paradigm shift in how technical education is conceptualised, not merely as a pipeline to formal employment, but as a launchpad for innovation and sustainable self-employment.

Recommendations

Based on the study's findings, the following recommendations are made to multiple key stakeholders who have influence over policy, education, financing, and youths' entrepreneurship:

1. Create public-private financing mechanisms for college graduates' startups which involves of setting up loan guarantee schemes or

matching grants in partnership with banks and microfinance institutions to fund graduates led enterprises.

2. Introduce industry-based mentorship schemes where there must be a partner technical college with local industries and successful entrepreneurs to offer students real world guidance, apprenticeships, and exposure to market dynamics.

3. Establish startup incubation hubs at technical colleges and these hubs should provide access to workplaces, seed funding, mentorship, and legal advisory services to help graduates transition from ideas to viable businesses.

4. Revise curricula to emphasise practical entrepreneurship such as infuse business planning, digital marketing, financial literacy, and customer engagement into training modules.

5. Institutionalise monitoring and evaluation of graduate outcomes through tracking the employment and business trajectories of graduates to continually refine programmes, align with market trends, and scale best practices nationally and regionally.

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