Bridging the Gap Between TVET Skills and Labor Market Demands an Analysis of the Influence of Training Outcomes in Dar Es Salaam, Tanzania

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ABSTRACT

Technical and Vocational Education and Training (TVET) plays a vital role in equipping students with employable skills to meet labor market demands. However, systemic challenges such as outdated curricula, limited practical training, and weak industry linkages undermine the effectiveness of TVET programs in Tanzania. This study investigates the influence of TVET-acquired skills on labor market readiness among students at the Dar es Salaam Regional Vocational Training Service Centre. Guided by Social Learning Theory, the study employed a mixed-methods approach, combining qualitative insights with quantitative regression analysis to measure the relationship between training outcomes and employability. Data were collected from 86 participants, including 82 students and 4 trainers.

Regression analysis revealed a moderate positive influence of training outcomes on perceived employability, with an adjusted R^2 value of 0.46, indicating that 46% of the variance in employability could be explained by skills acquired during training. The findings also highlight significant gaps in fieldwork opportunities, outdated teaching tools, and inadequate industry collaboration. To address these issues, the study recommends curriculum reforms, investments in infrastructure, and enhanced industry partnerships. These measures are critical for improving the alignment of TVET programs with labor market demands and ensuring the employability of graduates.

Keywords: TVET, Employability Skills, Labor Market, Skill Mismatch, Competency-Based Training, practical Learning, Tanzania

INTRODUCTION

Technical and Vocational Education and Training (TVET) systems have become indispensable in preparing work-ready graduates to meet labor market demands. Globally, countries such as Germany and Singapore have established successful TVET models that integrate theoretical learning with hands-on industry experience. Germany's dual education system, for example, provides students with equal exposure to classroom instruction and workplace-based apprenticeships, ensuring the alignment of their skills with industry needs (Saunders et al., 2004). Similarly, Singapore's employer-driven TVET system emphasizes collaboration with industries, enabling institutions to tailor their training programs to current labor market trends (UNESCO, 2020). These models highlight the critical role of TVET in addressing unemployment and fostering economic growth.

In Tanzania, the TVET system has been positioned as a key driver of youth employment and industrialization, aligning with the country's Vision 2025 agenda. However, despite the government's efforts to expand TVET enrollment and establish vocational training centers, concerns persist regarding the readiness of graduates to meet labor market requirements. Studies indicate that employers frequently cite deficiencies in technical expertise, practical competencies, and workplace readiness among TVET graduates (Munishi, 2016). This disconnects between training outcomes and labor market expectations poses significant challenges to the employability of graduates and the competitiveness of Tanzania's workforce.

The Dar es Salaam Regional Vocational Training Service Centre exemplifies the challenges facing Tanzania's TVET sector. While the center provides training in diverse technical disciplines, anecdotal evidence suggests that its graduates face difficulties in securing employment due to skill mismatches. This gap is exacerbated by systemic issues such as outdated training equipment, insufficient fieldwork opportunities, and weak partnerships with industries. These challenges undermine the potential of TVET to contribute to economic transformation and poverty reduction in Tanzania.

From a theoretical perspective, the study draws on Bandura's Social Learning Theory, which emphasizes the importance of experiential learning through observation, modeling, and practice. Fieldwork, internships, and industry collaborations are essential for translating theoretical knowledge into practical skills (Bandura, 1977). However, the limited integration of these components in Tanzanian TVET programs restricts students' ability to develop industry-relevant competencies. By examining the case of the Dar es Salaam Regional Vocational Training Service Centre, this study aims to assess the alignment of acquired skills with labor market demands, identify gaps in the training process, and propose actionable recommendations to enhance the effectiveness of TVET in Tanzania.

LITERATURE REVIEW

The study is underpinned by Social Learning Theory, which posits that individuals acquire knowledge and skills through observation, imitation, and interaction with their environment. Bandura (1977) emphasized the importance of modeling behaviors and practicing skills in real-world contexts, making this theory highly relevant to TVET education. In the TVET setting, practical sessions, fieldwork, and internships serve as critical mechanisms for students to observe workplace practices and replicate them under supervision. The absence of such experiential learning opportunities can result in gaps between acquired skills and labor market requirements.

Empirically, the misalignment between TVET training and labor market demands is a global challenge, particularly in developing countries. In Pakistan, Khan (2020) found that outdated curricula and limited exposure to industry settings hindered the employability of TVET graduates. Similar challenges were reported in the UK, where Saunders et al. (2004) highlighted the importance of collaborative curriculum design involving industry stakeholders to ensure relevance.

In Tanzania, research by Munishi (2016) revealed that many TVET institutions lack modern equipment and industry linkages, resulting in skill mismatches. Makumba (2010) further emphasized the need for practical learning components, noting that limited fieldwork opportunities undermine the effectiveness of TVET programs. Despite these challenges, successful models such as Germany's dual education system and Kenya's apprenticeship programs provide valuable lessons on the importance of integrating theoretical and practical training.

METHODOLOGY

This study utilized a mixed-methods approach, integrating both quantitative and qualitative data collection methods to assess the alignment of TVET-acquired skills with labor market requirements. A descriptive survey design was employed to explore the experiences of students and trainers at the Dar es Salaam Regional Vocational Training Service Centre. The study involved 86 participants, comprising 82 students and 4 trainers, who were selected through purposive and simple random sampling techniques.

Quantitative data were collected using structured questionnaires, designed to capture students' perceptions of training relevance and their preparedness for the labor market. To assess the influence of training outcomes on employability, regression analysis was conducted. The dependent variable was employability (measured through self-reported readiness for workplace tasks), while the independent variable was the perceived quality of training outcomes (measured by student ratings of curriculum relevance, practical training adequacy, and exposure to fieldwork).

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Qualitative data were gathered through semi-structured interviews with trainers and observations of workshops and classrooms. These methods provided contextual insights into the systemic challenges facing TVET institutions, including infrastructural deficits and limited industry partnerships. Quantitative data were analyzed using SPSS, with regression analysis yielding an adjusted R^2 value of 0.46, indicating a moderate influence of training outcomes on employability. Qualitative data were analyzed thematically, identifying recurring themes such as skill mismatches and the inadequacy of practical training.

To ensure validity, the research instruments were piloted and refined based on feedback from the pilot study. Reliability was maintained through standardized data collection procedures, ensuring consistency across participants. Ethical considerations were rigorously observed, including obtaining informed consent, ensuring confidentiality, and securing approval from institutional and local authorities.

FINDINGS AND DISCUSSION

Skill Mismatch

The regression analysis revealed that training outcomes had a moderate positive influence on employability, with an adjusted R2R^2R2 value of 0.46. This indicates that 46% of the variance in perceived employability could be explained by the skills acquired during TVET training. However, qualitative data from students and trainers highlighted significant mismatches between the skills imparted and those required by the labor market. Among the 82 students surveyed, 56 (68.3%) reported that their training did not adequately prepare them to meet employer expectations, particularly in technical fields such as information technology and engineering.

The mismatch between acquired skills and employer expectations reflects systemic deficiencies in Tanzania's TVET sector, particularly the lack of regular curriculum updates. One trainer observed, "Our curriculum does not address the technologies or processes used in most industries today. Students are learning techniques that are 10 years behind." This comment illustrates the disconnect between training programs and evolving workplace needs. Studies by Munishi (2016) and Makumba (2010) have similarly highlighted that outdated curricula in Tanzanian TVET institutions significantly hinder graduates' employability.

From the perspective of Social Learning Theory, the skill mismatch suggests a breakdown in the experiential learning process. Bandura (1977) emphasized the importance of modeling and practicing skills in environments that mimic real-world settings. However, the study's findings reveal that students often lack access to industry-standard equipment and relevant fieldwork experiences, which are critical for developing job-ready competencies. This deficiency diminishes the students' ability to observe, imitate, and internalize workplace practices effectively.

Comparative studies offer valuable lessons in addressing this challenge. For example, Germany's dual education system ensures alignment between training and labor market needs by integrating classroom learning with workplace-based apprenticeships (Saunders et al., 2004). Students are directly exposed to the tools and practices used in their respective industries, allowing them to develop relevant skills before graduation. In contrast, the limited integration of practical and theoretical learning in Tanzania's TVET system perpetuates the gap between education and employment.

Additionally, skill mismatches have broader socio-economic implications. Unemployed or underemployed TVET graduates contribute to the country's high youth unemployment rates, exacerbating poverty and inequality. Addressing this issue requires systemic reforms, including curriculum updates, improved industry collaboration, and investments in modern infrastructure. Without these changes, Tanzania risks losing the economic benefits associated with a skilled and competitive workforce.

Practical Training

The regression analysis further indicated that practical training plays a significant role in shaping employability, with a beta coefficient of 0.63 ($p < 0.05$). This suggests that practical training quality is a strong predictor of perceived workplace readiness among TVET graduates. Despite this statistical significance,

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qualitative findings revealed that students at the Dar es Salaam Regional Vocational Training Service Centre often lack adequate hands-on experience. Only 53% of students reported receiving sufficient practical training, and many described these sessions as overly theoretical or observational.

This lack of meaningful practical exposure significantly undermines students' ability to develop job-ready skills. Fieldwork and internships, which are essential components of effective TVET systems, were also found to be limited. Only 40% of students reported participating in fieldwork, and among these, many noted that the duration was too short to gain meaningful experience. Employers often assign TVET interns observational roles rather than involving them in actual tasks, further restricting their learning opportunities. This finding is consistent with research by Khan (2020), who observed that limited fieldwork in Pakistan's TVET programs contributed to skill gaps and reduced employability.

The implications of insufficient practical training can also be analyzed through the lens of Social Learning Theory. Bandura (1977) emphasized that learning is most effective when individuals actively participate in tasks and observe real-world practices. However, the lack of engagement in practical activities at the Dar es Salaam center restricts students' ability to internalize workplace behaviors and processes. This disconnects between theory and practice weakens the overall impact of vocational training, leaving students ill-prepared for the demands of modern industries.

International best practices highlight the importance of robust practical training in TVET. For instance, Singapore's employer-driven TVET model incorporates extensive industry placements, allowing students to gain hands-on experience and build relationships with potential employers (UNESCO, 2020). By contrast, the limited practical exposure in Tanzania's TVET programs reduces students' ability to demonstrate their competencies and adapt to workplace environments.

Addressing these issues requires a systemic overhaul of Tanzania's approach to practical training. Increasing the duration and quality of fieldwork, strengthening partnerships with industries, and providing students with access to modern tools and equipment are critical steps in bridging the gap between education and employment. By enhancing the practical components of TVET programs, institutions can better prepare graduates to meet labor market demands and increase their employability.

Infrastructural Challenges

Infrastructural deficits emerged as a significant barrier to effective training at the Dar es Salaam Regional Vocational Training Service Centre. Nearly 72% of respondents highlighted the inadequacy of teaching tools and facilities, with many describing the equipment as outdated or non-functional. For instance, the automotive workshop lacked modern diagnostic tools, while the computer lab had limited internet connectivity and outdated software. These limitations hinder students' ability to acquire the technical skills required in modern workplaces.

Trainers also expressed frustration with the state of infrastructure, noting that it constrained their ability to deliver effective lessons. One trainer commented, "We are supposed to teach students how to use advanced machinery, but our equipment is obsolete. It's difficult to prepare them for industries that use state-of-the-art technologies." This observation aligns with findings by Makumba (2010), who highlighted that resource constraints in Tanzanian TVET institutions limit their capacity to produce competent graduates.

From a theoretical perspective, the infrastructural challenges identified in this study undermine the principles of Social Learning Theory. Bandura (1977) emphasized that learning environments must provide the tools and resources necessary for effective modeling and practice. Without access to modern equipment, students are unable to replicate industry-standard practices, leaving them unprepared for the technical demands of the labor market. This lack of alignment between training environments and workplace realities perpetuates skill mismatches and reduces the overall effectiveness of vocational education.

Globally, successful TVET systems prioritize infrastructure development to support competency-based training. Germany, for example, invests heavily in equipping its vocational training centers with advanced

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tools and technologies to ensure that students receive high-quality training (Saunders et al., 2004). Tanzania's TVET institutions must adopt a similar approach, prioritizing investments in modern infrastructure to create conducive learning environments.

In addition to upgrading physical facilities, addressing infrastructural challenges requires increased funding and policy support. Policymakers must allocate resources to ensure that TVET institutions have the tools and technologies needed to deliver industry-relevant training. Without these investments, the gap between education and employment in Tanzania will continue to widen, limiting the potential of TVET to drive economic growth and reduce unemployment.

Theoretical and Empirical Implications

Theoretical Implications

The findings of this study strongly reaffirm the relevance of Social Learning Theory in understanding the processes of skill acquisition in Technical and Vocational Education and Training (TVET). Bandura's (1977) theory emphasizes that learning occurs through observation, imitation, and interaction with one's environment. In the context of TVET, practical training and fieldwork serve as critical mechanisms for students to observe workplace practices and replicate them under supervision. However, the study revealed that students at the Dar es Salaam Regional Vocational Training Service Centre often lacked meaningful exposure to real-world environments, undermining their ability to develop job-ready competencies.

The skill mismatches and insufficient practical training identified in this study highlight a gap in the application of Social Learning Theory within the TVET framework. Without adequate opportunities for experiential learning, students are unable to effectively model the behaviors and skills required in modern industries. For example, the limited fieldwork opportunities reported by students indicate that they are not sufficiently exposed to the tools, technologies, and practices prevalent in their fields. This deficiency restricts their ability to internalize and adapt to workplace norms, which is a key component of Bandura's theory.

Additionally, the study underscores the importance of modeling in vocational education. Bandura (1977) argued that observing competent role models in action is essential for effective learning. However, the weak industry linkages identified in this study suggest that students rarely interact with professionals who could serve as role models. The absence of such interactions deprives students of the chance to observe industry-standard practices and emulate them in a supervised environment. This finding calls for stronger collaborations between TVET institutions and industries to facilitate observational learning.

Theoretical implications also emerge regarding the role of the learning environment in skill acquisition. Social Learning Theory posits that environments equipped with the necessary tools and resources are crucial for fostering effective learning. The infrastructural deficits highlighted in this study—such as outdated equipment and insufficient teaching aids undermine the creation of conducive learning environments. Without access to modern tools, students are unable to practice the skills required by the labor market, limiting their ability to transition smoothly from education to employment.

Finally, this study highlights a potential adaptation of Social Learning Theory to address the systemic challenges in TVET. While the theory emphasizes individual learning processes, its application in resource-constrained contexts like Tanzania requires a broader focus on institutional and systemic factors. Strengthening infrastructure, enhancing fieldwork opportunities, and fostering industry linkages are essential for creating environments that support experiential learning. By addressing these systemic issues, TVET institutions can better align their training programs with the principles of Social Learning Theory and improve student outcomes.

Empirical Implications

The findings of this study contribute to the growing body of empirical evidence highlighting the challenges facing TVET systems in developing countries. Consistent with research by Munishi (2016) and Makumba

(2010), the study identifies outdated curricula, insufficient practical training, and infrastructural deficits as key barriers to skill alignment with labor market demands. These systemic issues not only hinder the employability of TVET graduates but also limit the sector's ability to contribute to national economic development and industrialization.

One of the key empirical implications of this study is the urgent need for curriculum reform in Tanzania's TVET institutions. The findings revealed that many training programs are not updated regularly to reflect technological advancements and changing industry requirements. This misalignment is consistent with global research, such as Khan's (2020) study in Pakistan, which emphasized that outdated curricula are a major contributor to skill mismatches in vocational education. Incorporating employer feedback into curriculum design is essential for ensuring that training programs remain relevant and responsive to labor market needs.

The study also underscores the importance of practical training and fieldwork as essential components of effective TVET programs. The limited opportunities for hands-on learning reported by students reflect a broader challenge in vocational education across low-income countries. For example, Saunders et al. (2004) found that insufficient fieldwork and internships in the UK's TVET system restricted students' ability to gain real-world experience. Addressing this gap in Tanzania requires stronger partnerships between TVET institutions and industries to provide students with meaningful exposure to workplace environments.

Infrastructural challenges, another key finding of this study, have significant empirical implications for policy and practice. The lack of modern equipment and teaching tools limits the ability of trainers to deliver effective lessons and hinders students' acquisition of relevant skills. This aligns with findings by Wambua (2018), who reported that resource constraints in Kenyan TVET institutions contributed to poor student outcomes. Empirically, this highlights the need for increased investments in infrastructure and teaching resources to create environments that support competency-based training.

The weak industry linkages identified in this study also carry important implications for improving the employability of TVET graduates. Research by UNESCO (2020) emphasizes that strong collaborations between training institutions and employers are critical for aligning education with labor market demands. In Tanzania, the limited engagement of industries in curriculum design and practical training deprives students of opportunities to interact with professionals and gain exposure to industry-specific practices. Strengthening these partnerships is essential for addressing skill mismatches and improving graduate outcomes.

Finally, the study provides empirical support for the need to integrate soft skills into TVET curricula. While the focus of vocational training often centers on technical competencies, the findings revealed that students also lack critical interpersonal and communication skills. This observation echoes global research, such as that by Makumba (2010), which emphasizes the importance of balancing technical and soft skills to prepare graduates for the workplace. Policymakers and educators must ensure that TVET programs adopt a holistic approach to skill development, addressing both technical and non-technical competencies.

CONCLUSION AND RECOMMENDATIONS

This study concludes that the skills acquired by TVET students at the Dar es Salaam Regional Vocational Training Service Centre do not adequately align with labor market demands. The primary challenges include outdated curricula, insufficient practical training, and weak industry linkages. These systemic issues hinder the employability of TVET graduates and limit the effectiveness of vocational training in addressing unemployment. To address these challenges, curriculum reform is urgently needed to ensure that training content reflects current industry requirements. Additionally, investments in modern infrastructure and teaching tools are essential to provide students with hands-on learning experiences that match workplace realities.

Furthermore, TVET institutions must strengthen their collaboration with industries to enhance fieldwork opportunities and ensure that students gain exposure to real-world practices. This requires establishing partnerships with employers to co-design curricula, offer internships, and provide mentorship programs. Trainers should also receive capacity-building support to equip them with the skills and resources needed to deliver competency-based training. Finally, policymakers must provide clear guidelines

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