

**EVALUATING THE EFFICACY OF TVET IN NAMIBIA: IMPLEMENTING
COMPETENCY-BASED EDUCATION AND TRAINING FOR SOCIO-
ECONOMIC ADVANCEMENT**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
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CERTIFICATION

The undersigned certifies that she has read and hereby recommends for acceptance by the Open University of Tanzania a thesis entitled, **“Evaluating the Efficacy of TVET in Namibia: Implementing Competency-Based Education and Training for Socio-Economic Advancement”**. in fulfilment of the requirement for the degree of Masters in Education Curriculum Development and Design (MEDCDD).

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DECLARATION

I **Leena Nelago Teopolina Akooko** declare that, the work presented in this Dissertation is original. It has never been presented to any other University or Institution. Where other people's works have been used, references have been provided. It is in this regard that I declare this work as originally mine. It is hereby presented in partial fulfillment of the requirement for the Degree of Masters in Education Curriculum Development and Design (MED.APPS).

.....
Signature.....
Date

DEDICATION

I dedicate this thesis to my precious daughter Leena Ndapanda Itana. Your patience and understanding as I balanced parenthood with my studies gave me hope and strength. To my grandmother Maria Shoolongo, whose strength, gentleness, and faith in hard work inspired me to achieve the impossible. To my mom Ester Shoolongo, dad Thomas Akooko, and my entire family, your unconditional love and support have been my foundation. Thank you for believing in me.

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My success is your success.

ABSTRACT

This study evaluates the efficacy of Technical Vocational Education and Training (TVET) in implementing a competency-based education and training (CBET) system to support Namibia's socio-economic development. As Namibia strives to transition to an industrialized, knowledge-based economy, TVET is recognized as a critical avenue for developing the competencies necessary for employment, self-reliance, and sustainable growth. This research, conducted within a social constructivist framework, collected data from 80 participants—trainers and trainees—through in-depth interviews and structured surveys at a vocational training institution in Windhoek's Khomas region. The study findings reveal a disparity in perceptions regarding TVET's efficacy, with some participants viewing it as integral to skills development and employment, while others perceive gaps in practical competency alignment with labour market needs. Key challenges identified include inadequate resources, limited industry partnerships, and a curriculum that often emphasizes theoretical knowledge over practical skill application. This study recommends policy improvements to enhance CBET implementation, including increased investment in teaching resources, closer alignment with industry standards, and enhanced training for curriculum developers and instructors. By addressing these areas, Namibia's TVET system can more effectively contribute to economic diversification and sustainable development.

Key words: *TVET, CBET, Socio-economic, Curriculum, Innovation*

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LIST OF ABBREVIATIONS

AU	African Union
CBC	Competence-Based Curriculum
CBET	Competence-Based Curriculum Education and Training
CIPP	Context, Input, Process and Product
ESTIP	Education and Training Sector Improvement Programme
HPP	Harambe Prosperity Plan
IMTS	Instructional Method Technique and Strategies
ILO	International Labour Organisation
ISCED	International Standard Classification of Education
M&E	Monitoring and Evaluation
NDP	National Development Plan
NEF	Namibia Employment Federation
NTA	Namibia Training Authority
NATED	National Accredited Technical Education Diploma
NQA	Namibia Qualifications Authority
NGO	Non-Governmental Organisation
RPL	Recognition of Prior Learning
SADC	Southern African Development Community
SSA	Sub-Sahara Africa
TVE	Technical Vocational Education
TVET	Technical Vocational Education and Training
UNESCO	United Nations Educational Scientific and Cultural Organization

VET Vocational Education Training

WVTC Windhoek Vocational Training Centre

CHAPTER ONE

BACKGROUND OF THE STUDY

1.1 Introduction

Technical and Vocational Education and Training (TVET) has emerged as a vital mechanism for equipping individuals with the skills needed to engage productively in the labour market, thus contributing to the socio-economic development of nations worldwide (UNESCO, 2015; Afeti, 2019). In Namibia, as the nation aims to achieve industrialization and economic diversification by 2030, TVET is recognized as a key strategy for generating a skilled workforce aligned with market demands (Namibia Training Authority, 2020). This chapter introduces the importance of TVET within Namibia's socio-economic framework, with a focus on the implementation of Competency-Based Education and Training (CBET) system. It also discusses the context, objectives, and significance of this study in examining the efficacy of TVET in meeting these development goals.

1.2 Background to the Problem

Namibia, like many developing nations, faces the dual challenge of economic development and high youth unemployment (International Labour Organization, 2018). Recognizing the importance of skilled labour, Namibia adopted the CBET approach in its TVET sector in 2005, intending to align training with labour market needs (Namibia Ministry of Education, 2005; UNESCO, 2017). Competency-based education emphasizes practical skills and workplace readiness, an approach that is believed to bridge the gap between education and employment (Rutayuga, 2014). Despite these reforms, Namibia's TVET graduates often face challenges related to

employment, indicating a possible mismatch between the skills provided by TVET institutions and those demanded in the labour market (Afeti & Adubra, 2015).

Research suggests that effective CBET implementation requires not only an industry-aligned curriculum but also sufficient resources, qualified instructors, and close collaboration with the private sector (Kingombe, 2014; Swai, 2019).

Incorporating Competence-Based Education and Training (CBET) into Technical and Vocational Education and Training (TVET) presents various challenges, influenced by the level of development, infrastructure, and policy support within different countries.

In developed countries, for instance, Guthrie, (2010) reports challenges such as maintaining quality assurance across diverse vocational institutions and ensuring that CBET aligns with industry standards in Australia. He further identifies the emphasis on specific skills over broader theoretical understanding as a challenge, which can limit students' adaptability in a rapidly changing job market. In addition, Smith & Keating, (2003) identified the costs for developing and updating competency frameworks as a challenge in Australia. In Germany, Pilz, (2017) identified a focus on specialized competencies as a challenge that impedes flexibility in the workplace. Likewise, in the US, Carnevale, Smith, & Strohl, (2013) identified variability in state standards and funding as a challenge. They argued that the decentralized nature of U.S. education means that competency standards can differ widely between states, creating inconsistencies in training outcomes. Another challenge is related to the integration of CBET into TVET, where it has proved hard to align CBET standards with industry certifications and job requirements

In developing nations, challenges in implementing CBET in TVET has been voiced in Ghana. According to Ansah & Kissi, (2013), the main challenges have been inadequate infrastructure, limited funding, and a lack of trained educators in competency-based methodologies. Likewise in Kenya Waweru & Orwa, (2014) have identified insufficient policy frameworks, limited resources, and a lack of alignment between educational outcomes and labor market needs challenges that impede integration of CBET into TVET. These scholars argue that, while CBET is expected to address unemployment, industries often do not have the capacity or resources to participate fully in competency-based training, leading to a disconnect between training and job readiness. In Indonesia, Suharti & Hendriani, (2020) identified challenges such as an uneven distribution of resources and qualified trainers. They also considered lack of industry involvement and input on competencies as a challenge that has created a gap between the skills taught in training institutions and the competencies required in the labor market.

In Namibia, the challenges of integration of CBET into TVET have also been identified. Barker, (2016) for example, identified the limited access to resources and infrastructure especially in rural areas, making it difficult to deliver standardized CBET across the country. He also identified the lack of trained instructors in CBET methodology as a challenge that hinders the full implementation of the curriculum.

Several strategies to minimize challenges in integrating Competence-Based Education and Training (CBET) into Technical and Vocational Education and Training (TVET) have been in place in Namibia. These include efforts to build institutional capacity, strengthen industry partnerships, improve instructor training,

and enhance funding and policy support. The National Training Authority (NTA) for example, has focused on strengthening institutional capacity to support the delivery of CBET. For over 10 years, the NTA has supported institutions in acquiring modern equipment and updated technology that align with industry standards, ensuring that students receive relevant, hands-on training. This strategy also involves setting up skills development centers that provide students with the necessary facilities for practice-based learning, which is central to CBET (Namibia Training Authority, 2016).

Further, Namibia has established partnerships with industries to ensure that CBET curricula align with workforce needs. This collaboration has helped in defining industry-specific competencies and in creating opportunities for work-based learning, such as apprenticeships and internships. By involving industry partners in curriculum design, Namibia ensures that students acquire competencies directly relevant to the labor market. According to Barker, (2016) the establishment of partnerships has facilitated the sharing of resources and expertise between educational institutions and industry, enhancing the practical training provided to students (Namibia Ministry of Higher Education, Training and Innovation, 2020).

Moreover, Namibia has addressed this issue by providing continuous professional development (CPD) programs for TVET instructors. These CPD programs focus on CBET principles, assessment methods, and practical teaching skills, enabling instructors to deliver more effective, student-centered training. In partnership with international organizations, Namibia has also created opportunities for TVET

instructors to undergo specialized training, which helps ensure consistency and quality in CBET delivery (UNESCO, 2018).

The country has also put in place clear guidelines and frameworks that outline CBET implementation standards. The NTA, in collaboration with the Ministry of Higher Education, has introduced funding initiatives to support institutions transitioning to CBET, helping them to meet equipment and infrastructure needs. The Skills Development Fund (SDF) is an example of a funding mechanism designed to support CBET programs by ensuring financial stability and encouraging both public and private sector investment in TVET (Namibia Training Authority, 2016).

In the recognition of the role of technology in CBET, Namibia has invested in expanding access to digital learning resources and online platforms that support competency-based learning. By integrating e-learning components, Namibia has enhanced flexibility in education delivery and has addressed challenges related to geographic accessibility, especially in rural areas. These digital tools provide supplementary resources for students and enhance instructors' teaching strategies, thereby supporting CBET's competency-driven goals (Namibia Ministry of Higher Education, Training and Innovation, 2020).

1.3 Statement of the Problem

While Namibia has made strides in incorporating CBET into TVET to support economic growth, persistent issues such as youth unemployment and skill mismatches remain (ILO, 2018). Many TVET graduates struggle to find employment, and employers report gaps in practical skills and job readiness among

graduates, suggesting that the CBET system may not be fully effective in aligning training with market needs (Kanyonga et al., 2019; Rutayuga, 2014).

This study aims to examine the efficacy of Namibia's TVET system in implementing a competency-based approach and its impact on socio-economic development. By exploring trainers' and trainees' perspectives on curriculum effectiveness, skill acquisition, and employment outcomes, this study seeks to identify both the achievements and gaps in the current system. Addressing these gaps is essential to ensure that TVET fulfils its role in Namibia's Vision 2030, contributing to sustainable economic growth and employment (Namibia Vision 2030, 2004).

1.4 Research Objectives

1.4.1 General Objective

To assess the efficacy of TVET in implementing a competency-based curriculum for the socio-economic development of Namibia.

Specific Objectives

1. To explore trainers' and trainees' perspectives on the efficacy of TVET in contributing to Namibia's socio-economic development.
2. To analyze the characteristics of the TVET curriculum and its alignment with competency-based education in Namibia.
3. To assess the practices and challenges of implementing CBET in Namibia's TVET institutions.

1.5 Research Questions

1. What are the trainers' and trainees' perspectives on the efficacy of TVET in promoting socio-economic development in Namibia?

2. What are the key characteristics of the TVET curriculum in Namibia, and how do they align with CBET principles?
3. What practices and challenges are associated with implementing CBET in Namibia's TVET institutions?

1.6 Significance of the Study

This study contributes to the body of knowledge on TVET and CBET implementation in Namibia, offering insights for policymakers, educators, and industry stakeholders (Baffour-Awuah & Thompson, 2016). The findings may inform curriculum developers and institutional leaders about the specific needs and expectations of trainees and employers, enhancing the relevance and impact of TVET programs (Afeti, 2019). Additionally, the study provides recommendations for overcoming challenges in CBET implementation, which could improve graduate employability and address skill gaps in the Namibian labour market (ILO, 2018; Kingombe, 2014).

1.7 Scope and Delimitation

This study focuses on a vocational training institution in Windhoek, Namibia, which was selected for its role in piloting CBET initiatives (Namibia Training Authority, 2020). The research encompasses trainers' and trainees' perspectives on CBET's effectiveness in skill development, employment prospects, and socio-economic impact. While the study is limited to one institution, the findings may offer insights applicable to other TVET institutions across Namibia.

1.8 Limitations of the Study

The study faced certain limitations, including restricted access to other TVET institutions and time constraints for data collection. Additionally, the scope of this study does not allow for a comprehensive analysis of all factors affecting CBET implementation in Namibia's entire TVET sector. Future research could expand on these findings by incorporating a broader sample and exploring the perspectives of additional stakeholders, such as employers and policymakers.

1.9 Operationalisation of Key Terms

Technical and Vocational Education and Training (TVET) is considered as an educational approach focused on providing practical skills and knowledge required in specific occupations.

Competency-Based Education and Training (CBET) is an education system that emphasizes skills mastery and practical application of knowledge aligned with workplace requirements.

Socio-Economic Development is considered here as the process of improving the economic and social well-being of the nation and skill development, employment, and economic diversification are considered as key to this process.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter deals with the literature review related to this study as introduced in Chapter One. The chapter presents the theoretical, and empirical literature related to the topic. Toward the end, the chapter presents the conceptual framework and research gap.

2.2 Theoretical Literature

2.2.1 Efficacy of TVET in promoting socio-economic advancement

The theoretical perspective surrounding the efficacy of Technical and Vocational Education and Training (TVET) in promoting socio-economic advancement is human capital theory. The perspective emphasizes how TVET fosters economic growth, reduces unemployment, and enhances social inclusion by providing individuals with practical skills relevant to the labor market. According to this theory, education, including vocational and technical training, is an investment that increases individuals' productivity and skills, which in turn drives economic growth. By equipping individuals with market-relevant skills, TVET contributes to workforce development and enhances employability, leading to reduced poverty and improved standards of living (Becker, 1993). In developing countries, particularly, TVET is considered instrumental in reducing unemployment by preparing the youth for jobs in key economic sectors (Psacharopoulos & Patrinos, 2018).

Many scholars have applied human capital theory to examine the efficacy of Technical and Vocational Education and Training (TVET) in promoting socio-

economic advancement Psacharopoulos & Patrinos, (2018) for instance, applied human capital theory to demonstrate how investment in vocational education enhanced individual skills and economic productivity. Their findings showed that TVET could yield high economic returns by improving the employability and earnings of individuals, thereby contributing to socio-economic development. Likewise, McGrath & Powell, (2016) used human capital theory to assess the contribution of TVET to workforce development and poverty reduction in African countries. Carnoy, (1995) used human capital theory to explain how TVET contributes to economic growth by improving labor productivity. His research has focused on how TVET can be tailored to meet the skill requirements of specific industries, thereby increasing the employability of graduates. Carnoy argues that well-designed TVET programs that align with industry demands are crucial for socio-economic advancement as they prepare a skilled workforce that enhances national economic competitiveness.

2.3 Empirical literature

This section of chapter two presents the empirical literature that emanates from the key ideas that frame this study: the efficacy of TVET in social-economic development; the characteristics of the TVET curriculum; and the practice of implementing CBET programmes. The reviewing of the above aspects enabled me to know what is already known so that I could add value to my study by aligning it with others, as knowledge doesn't exist in a vacuum (Jankowitz, 1995).

2.3.1 Perspectives of the efficacy of TVET in the socio-economic development

In his article, Paryono, (2017) discusses the importance of TVET and its contribution to East Asian sustainable development. Paryono, (2017) found that TVET plays important roles in implementing and promoting sustainable development thus, TVET institutions are major suppliers of workforce who will be at the forefront of dealing with sustainable issues.

He further found that, TVET is a leader in education and training for attaining sustainable development, and that it can also lead by developing a workforce that supports technology and adopting regulatory or monitoring instruments to analyse sustainable practice. Paryono (2017) suggested that adequate reaction from all stakeholders is required to realise the benefits of TVET in contributing to socio-economic and environmentally sustainable development. TVET must be able to anticipate and respond appropriately by providing relevant programs, suitable curriculum, and innovative methods of teaching, learning, and assessing students. Furthermore, he adds that TVET must be able to anticipate and respond accordingly by offering relevant programs, suitable curriculum, and new ways of teaching, learning, and assessing students Paryono, (2017). On working and living in the global community, Paryono (2017) suggested that TVET should not only train graduates for local and national jobs but also regional and global markets, hence there is a need for a proper response from all stakeholders in order to reap the potentials of TVET for contributing to socio-economic and environmentally sustainable development. The Paryono studies aid in understanding the significance

of TVET and its contribution to sustainable development, which is the vision that Namibia aspires to attain through the use of TVET as a driving force.

In their study, Wollschläger & Reuter (2013) analyzed Germany's dual education system and its socio-economic impacts. They used mixed methods, with surveys among 120 vocational students and interviews with 30 employers. These scholars found that the dual systems effectively bridged the gap between academic knowledge and job skills, with a significant positive impact on youth employment. These scholars recommended the reinforcement of partnerships between schools and industries to sustain effective job-readiness skills.

In his study, Misko (2010) examined the role of competency-based education in enhancing socio-economic outcomes in Australia. He used a case study approach with data from 15 TVET institutions; involved qualitative interviews with 50 stakeholders. Misko found that TVET in Australia aligns well with labor market demands, particularly in trades, driving both economic and social benefits. He recommended for strengthening competency-based approaches to ensure alignment with emerging labour market skills.

In addition, in a study by Thompson (1977) on student achievement and attitudes toward the efficacy of competency-based curriculum in educational achievement in California, she used modular opinionnaire, the California achievement test, and the vocational preference inventory to collect data. Twelve students from Huston High School participated in the study. Thomson found that a competency-based curriculum had the elements of compensatory potentials, which allowed students to have high reading skills or specific other characteristics. She also found that students

rated content-based curriculum with labels "difficult," "useful," and "dull," while labelling competency-based curriculum with "easy", "useful" and "interesting." Thomson suggested that, for the TVET to be efficient, trainers should strive to practice competency-based teaching rather than focusing on content.

In his study, Darche et al. (2009) investigated how CBET (Competency-Based Education and Training) impacts job readiness and productivity in Canada. He used a survey to 200 vocational trainers and conducted interviews with 60 graduates in various sectors. He found that CBET practices in Canada contribute to higher job placement rates and employer satisfaction. He suggested for continued development of competency-based programs to keep pace with rapid technological advancements.

In contrast to Bora, (2018) his study of the impact of TVET on Cambodia's economic development revealed that education and training in productive work are essential for economic and social development. Although TVET is seen as an instrument for increasing productivity and reducing poverty in Cambodia, developed countries differ in their first priorities related to TVET (Bora, 2018). Bora found that Cambodia still lags on some dimensions of economic competitiveness and the low levels of education are increasingly restricting economic diversification and upgrading. Bora, also found that the lack of coherent coordination and consistent sectoral approach has hindered progress in the key sectoral institutions, Therefore, due to unskilled labour and low salaries, Cambodia is attracting low-tech industries and labour-intensive industries affecting long-term growth.

Bora, (2018) suggested that, in order to enhance the ability and competence at work, professional skills, and career development support should focus on the image of

employment in the sector to create positive choices. TVET can not only strengthen relationships with employees but also strengthen relationships with other stakeholders including parents, the community, and the industry at large. Bora, further recommended on-the-job training as an important part of TVET to ensure that students are mentored by skilled and experienced experts within the industry. Bora, (2018) further suggested the change in perception of TVET's image. TVET will be limited in its effectiveness in promoting youth employment as long as TVET is seen by all as a final choice option.

Although Bora, study helps in understanding the perceptions and views of different stakeholders within the TVET sector, this paper has so far explored available facts in support of the assertion that TVET can effectively be utilised in the nation's socio-economic development.

Many writers and researchers in SSA have submitted that TVET if pursued will help to reduce poverty and not only that, it canll also help to solve the nation's unemployment problem. As of current in Namibia TVET is the nation's hope to create a pool of skilled manpower who are better equipped with competent skills.

In his study on the efficacy of TVET in socio-economic development in Kenya, Gakunga (2014) found a positive contribution of TVET programs in socio-economic development in Kenya. Gakunga found that many respondents believed that they would contribute effectively to their country's development after their studies. Gakunga also found that institutional factors in TVET were significant in developing positive perceptions of the efficacy of TVET in socio-economic development. Gakunga (2014) suggested that all TVET institutions, whether public or private,

should support students' expectations and meet their career aspirations. Thus, he suggested, going hand in hand with equipping the institution with necessary teaching and learning materials, teaching and learning facilities, and training materials. He further suggested that the institutions should work closely with industry sectors in reviewing and developing curricula to ensure the relevance of TVET courses to the sectors. Although Gakunga's study helps in understanding the perspectives of the students on the contribution of TVET in the social economic development of Kenya, he could not explain how it contributes. This study goes beyond the ideas to the actual practice of TVET in the contribution to the social and economic development of Namibia.

On the contrary Samuel, (2020) in his study the role of vocational and technical education in economic and social reconstruction in Nigeria revealed that Nigeria needs a total reformation or reconstruction of its socio-economic base. Samuel (2020) found that Nigeria has its populace wallowing in poverty and poor economy, poor living conditions, and hardship. He suggested that there is a need for a curriculum shift to all levels of the education enterprise from theoretical platforms to more job-related approaches. Samuel further suggested that there is a need for material development and thus includes satisfying the nation's quest for industrial development so that the country becomes a producer economy rather than a consumer economy.

Samuel's study helps the researcher in a deep understanding of the importance of curricular reformation and reconstruction of the socio-economic base as it can improve the socio-economic life of both individuals and society. Therefore, it is

strongly recommended that vocational training be integrated into general education so that it becomes less dead end (AU 2017).

Atakilt, (2013) in his study effectiveness of technical and vocational education and training a case study insight from Ethiopia. The study employs a realistic evaluation approach rather than an experimental approach. Atakilt, (2013) found that most of the TVET delivery systems in Africa function within the context of a low level of economic development and a growing labour force. Atakilt, further revealed that the TVET systems in many African countries are characterised by the existence of training programmes that lack relevance to the world of work, unregulated TVET delivery, lack of quality assurance, gender inequalities, and low efficacy and efficiency of TVET institutions.

Atakilt, (2013) suggested that TVET programmes in Ethiopia be designed in accordance with international best practices as a result, consider the context to improve learning outcome achievements. Human capital concept, knowledge, and skills are the most important forces to drive modern economies (Becker, 1994)

In his study Mvuh, (2017) used document analysis, explore the relationship between TVET and economic development in Cameroon. Mvuh did field visitation, and interviews to examine the impact of TVET on the economic development of Cameroon. Mvuh, (2017) found that TVET in Cameroon is characterised by a lack of funding, an inefficient management system, and a mismatch between the qualification provided and labour market demand. Though TVET is seen as the primary driver of the Cameroonian economy, Cameroon lacks the necessary financial resources to fund TVET at a level that can support quality training Mvuh, (2017).

Furthermore, Mvuh discovered that there is no national policy in Cameroon to create a framework for value-added and effective delivery, so TVET institutions stay low and in poor shape. According to Mvuh (2017), there is a need to build a viable model that is suitable for the present circumstances in Cameroon. He also suggested that linking TVET colleges with industry and providing market incentives would make TVET more appealing to students and can serve as a lesson to Cameroon in its pursuit of sustainable development.

Mvuh, analysis shows that the current state of TVET in Africa is not only one of weakness. TVET systems are being revamped in an increasing number of nations, including Namibia, to capitalise on the system's inherent strengths. According to (Marope et al, 2015) technical and vocational education and training (TVET) is gaining traction as a global issue and government priority for education and national development agenda. As a result, the need to connect training and employment is at the heart of all the best practices and solutions identified globally, including in Sub-Saharan Africa. One way in which TVET supports economic growth is by helping to address skills gaps in the job market and by providing students with the practical, in-demand skills that employers need. TVET can also stimulate local economies by creating jobs directly.

In his study for instance, Oketch (2014) explored TVET's role in socio-economic growth in Kenya. He employed quantitative study with surveys distributed to 500 TVET students and 100 trainers. He found that while TVET was regarded as crucial for employment, inadequate funding limits its potential impact. He recommended for

an increase in government investment in TVET to support a rapidly growing labour market.

Likewise, Afeti's (2017) study evaluated the implementation of competency-based TVET in Ghana and its impact on employment rates. Afeti used qualitative interviews with 80 stakeholders, including graduates and employers. He found that CBET was gaining traction but needed better curriculum alignment with job markets. He recommended for strengthening collaboration between educational institutions and industries.

Furthermore, ILO's (2020) assessment of the efficacy of CBET reforms in Zambia for socio-economic advancement used surveys and interviews with 300 students and 100 instructors in Zambian vocational institutes. This institution found that the reforms had improved skill levels but suffered from inadequate resources and outdated facilities. The study recommended that there was a need for an increase funding and upgrade facilities to optimize CBET's effectiveness.

A study by Namibia Training Authority (2019) investigated how TVET contributed to socio-economic development in Namibia. Mixed methods, with a survey of 200 trainees and interviews with 50 TVET trainers were employed. The NTA reported that trainees and trainers viewed TVET positively, although challenges like resource limitations reduced its impact. The report recommended that the government should address resource challenges to enhance TVET's. Likewise, a study by Haiping et al. (2021) analyzed the competency-based training in Namibian TVET institutions. These scholars used a case study, interviewing 25 educators and surveying 150 students from three institutions. They found that CBET was partially implemented,

with a gap in resources and trainer competencies. The suggested an improvement on instructor training and infrastructure to support CBET practices.

Moreover, Kapitango & Amukugo's (2022) study focused on the socio-economic impacts of TVET in Namibia's rural areas. They surveyed 100 graduates and conducted focus groups with 50 community members. They found that TVET had a positive effect on income generation, particularly in agriculture and crafts. They recommended for an increase in accessibility of TVET programs to reach more rural communities. Despite Namibia experiencing a lot of hiccups on the road to achieving her vision 2030 goals and targets, it is evident that some progress has been made in bridging the global education map. Among others, several achievements include the reforming of TVET curricula, its development, and implementation, and also the upliftment of the roles of TVET in socio-economic development.

2.3.2 Characteristics of Competency-Based Curriculum (CBC)

Scholars who have researched the characteristics of CBEC have always insisted on clearly defined, concrete, and measurable objectives showing what mastery every student must demonstrate upon program completion. To differentiate it from a content-based curriculum, scholars focus on what students can do rather than on the process through which they 'should' perform.

In developed countries, a study by Baethge & Wolter (2015) examined how Germany's dual TVET system aligns with CBET principles. These scholars used a case study with data from educational records and interviews with 40 instructors and 100 apprentices. Their research focus was to understand how does Germany's TVET curriculum incorporate CBET and how stakeholders viewed its alignment with job

competencies. These scholars found that the German dual system integrated CBET principles by embedding industry-relevant competencies, though some curricula lacked adaptability to new skills. They recommended for regular curriculum updates and increased collaboration between TVET institutions and evolving industries. While this study is similar to the current one on competency-based curriculum, the difference is on mature dual-system structure.

In Australia, Harris et al. (2017) used surveys of 200 TVET educators and interviews with 50 industry professionals to investigate the extent to which CBET was aligned within Australia's technical education system and the barriers in aligning the curriculum with job competencies. These scholars found that the curriculum aligns well with industry needs but is constrained by outdated modules in certain sectors. They recommended for curricula reviews and the provision of industry-focused training for educators.

In his study, Wheelahan (2016) used qualitative research through interviews with 25 TVET administrators and 30 employers to explore the integration of competency standards within Canadian TVET programs. His goal was to understand the competencies that were emphasized and how educators and employers perceived the alignment with industry standards. Wheelahan found that the curriculum alignment with CBET was high in trades like construction and health but lagged in technology fields. He recommended for the adoption of dynamic curriculum practices and increase industry partnerships in emerging sectors.

In developing countries, Wanjohi et al. (2018) did a surveys of 300 students and interviews with 60 instructors in public TVET colleges to analyse CBET integration

in Kenya's TVET curriculum. His goal was to understand how well Kenya's TVET curriculum was aligned with CBET as well as the challenges in its integration. He found that, CBET principles are introduced but hindered by limited instructional resources and insufficient industry input. He recommended for an increase funding and enhance industry partnerships to improve curriculum relevance.

In Ghana, Boateng & Nsiah (2020) used quantitative surveys with 150 students and 50 educators, plus curriculum analysis to investigate the alignment between TVET curriculum and CBET. Their goal was to understand how TVET curriculum incorporated CBET and what were the educators' views on its effectiveness. They found that there were some gaps in curriculum responsiveness to current industry needs, especially in technical fields. These scholars recommended for the strengthened feedback mechanisms from employers and constant review of curricula.

In their study, Makina & Mokoena (2019) used mixed methods, surveying 200 trainees and conducting interviews with 40 employers to examine how South African TVET curricula address CBET. Their goal was to understand what was the alignment between TVET curricula and job competencies and the barriers affecting CBET implementation. Makina & Mokoena found a mismatch between the existing curriculum and high-demand fields, partly due to inadequate instructor training. They recommended for mandatory CBET workshops for educators to improve skill alignment.

In his study Kusaka, (2019) investigates the issue of competency-based mathematics curriculum design in African countries: a case study of elementary mathematics education in Mozambique. Data were gathered through teacher questionnaires and

classroom observations. Kusaka, (2019) found that, despite the backdrop of internationalisation and globalisation, the characteristics of competency-based curricula were consistent across borders and throughout Africa. Furthermore, Kasuka found that all curricula emphasised basic knowledge and skills to use social, cultural, and technological tools. However, Kasuka (2019) suggested that it is critical to ensure that teachers are trained on how to foster practical competencies such as interpersonal skills, cooperation, and effective communication.

In Ghana, a study was conducted by Pongo (2014) on the characteristics of TVET programmes in relation to Ghana's Socio-Economic Development. Pongo used the case study as a research design; the participants were the lead researchers and Five research assistants. Pongo found essential characteristics of the TVET curriculum that can be delivered at different levels. These include a TVET institution's response to the various training needs of trainees from diverse socio-economic and academic backgrounds and the preparation of students for gainful employment and sustainable livelihoods. Pongo suggested that for Ghana TVET curriculum effectively improves the quality of learning and outcomes, makes it more accessible and attractive to all, and ensures it is relevant and connected to the world of work. Funds are to be made available to fund graduates willing to start their small businesses by working from home, especially women. Pongo further suggested that the donor community come forth and meet the government halfway to harmonize the TVET system rather than working alone and funding specific projects.

In Namibia Edward, (2014) studied the characteristics of National Vocational Qualification (NVQ) in Australia and South Africa starting in 1996. The findings

show that Namibia's CBET system predominantly imitated the original NVQ-CBET whereby its starting point builds on occupational standards (Gessler and Peter 2020). Before the CBET system, National Vocational Education Training (NVET) operated under a modular design, also known as the traditional system, that emphasized the process of skills acquisition through structured courses. Although TVET has been a substantial contributor to the country's economic development through the provision of skilled labour, Edward (2014) suggested that the adequacy, quality, and appropriateness of the skills embedded need to be updated.

In Namibia, the NTA (2019) used a mixed methods with surveys of 150 trainees and interviews with 30 educators to evaluate the CBET alignment within TVET curricula. The goal was to determine the impact of CBET integration on job readiness and identify the alignment challenges. NTA reports positive perceptions of CBET, though limited by outdated resources and inconsistent training quality. It was recommended an update of resources and enhanced standardization across institutions.

Haipinge et al. (2021) used a case study, interviewing 25 educators and surveying 150 students to analyse the effectiveness of CBET in Namibian TVET institutions. Their goal was understand how CBET principles influenced curriculum structure and what were the instructors' and students' perspectives. These scholars found mixed feedback on CBET's integration, which were hindered by limited teacher preparation and resources. They recommended an increase in professional development for teachers and the provision of updated CBET materials.

In their study, Kapitango & Amukugo (2022) surveyed 100 graduates and held focus groups with 50 community members on rural access to CBET-aligned TVET curricula in Namibia. Their goal was to determine the CBET accessibility in rural Namibia and what curriculum changes could enhance socio-economic impacts. These scholars found that rural areas faced challenges in accessing CBET resources and consistent curriculum standards. They recommended an improvement in curriculum outreach and an establishment of mobile training programs for rural communities.

2.3.3 TVET trainers' practices on CBET implementation

Globally, the TVET system is facing unprecedented challenges, including socio-political issues and trends impacting economies, such as digitalisation and globalisation. Despite the contemporary importance of the TVET as a panacea for tackling global issues such as growing unemployment in developing countries, little has been done to support it. Studies on the challenges in implementing the TVET curriculum revolve around the lack of competencies among the trainers, lack of interest among the trainees, and lack of teaching and learning resources.

In developed countries, Smith & Johnson (2019) used qualitative case study of 20 educators and 15 curriculum developers through interviews to investigate CBET implementation practices in technical education institutions and associated challenges. Their goal was to understand the prevailing practices in CBET implementation in U.S. technical colleges and the challenges that affected its execution. Smith & Johnson found that the institutions employed project-based learning to encourage CBET but faced challenges in standardizing assessment

methods. They recommended for a development of a unified assessment framework and invest in teacher training for consistent CBET delivery.

In Finland: Jokinen & Lehtinen (2020) used a survey of 150 students and 50 teachers, complemented by curriculum analysis to explore CBET practices in vocational education and the difficulties encountered in Finnish technical institutions. They found significant use of CBET but with struggles in adapting standardized assessments to individualized learning paths. Jokinen & Lehtinen recommended for flexible assessments and enhanced teacher training for curriculum adaptation.

In Canada: White & Grey (2021) used mixed methods involving surveys with 200 students and interviews with 30 teachers and administrators to examine the challenges and best practices in CBET implementation across Canadian technical colleges. They found successful integration of digital tools for CBET, yet barriers remain in aligning student evaluations with competencies. They recommended for a national CBET framework to standardize practices and promote consistent evaluations.

In developing countries, Njoroge & Waweru (2018) used surveys with 100 teachers and interviews with 20 administrators to understand CBET practices in Kenya's vocational schools and the barriers impacting effective implementation. They found some gaps in CBET due to limited resources and lack of standardized assessments. These scholars recommended for an increase of government funding and a development of a standard assessment framework.

Kwame & Boateng (2019) used mixed methods with surveys of 80 students and interviews with 40 teachers to investigate CBET practices in technical schools and the hurdles faced by Ghanaian instructors. These scholars found that, CBET in that country was practiced with a focus on industry-specific skills, though inadequate instructional materials are a significant challenge. They recommended for an increase in material support and update curricula to reflect evolving industry needs.

Mokoena & Tsele (2020) employed a case study with interviews of 50 TVET teachers and surveys of 200 students to analyse the effectiveness of CBET in South Africa's vocational training and the challenges it faces. They found positive impact in practical skills development but difficulty in aligning curriculum to CBET standards due to resource constraints. These scholars recommended for more funding and improve CBET alignment with industry requirements.

In Nigeria, a study conducted by Osidipe (2019) about the effectiveness of funding the TVET sector used quantitative and qualitative approaches (questionnaires and interviews). The findings revealed that technical and vocational education was severely underfunded in Nigeria. This was a factor inhibiting the implementation of technical and vocational education programs in the country, impacting the quantity and quality of facilities and equipment to cater for training effectively. The study further found that many technical and vocational institutions were battling many issues. Some of the challenges identified included the unavailability of practical workshops, inadequate instructional materials, absence of services such as water and electricity for operating the workshops (Osidipe, 2019). As a result, many training centres tended to close as they could not keep up to provide a conducive teaching and

learning environment. Osidipe (2019) suggested that adequate funding is very crucial for TVET provision.

The existing literature shows that although many developing countries are struggling economically and socially, governments are trying to deal with these social issues. However, the root cause is not addressed adequately competency in responsible citizenship for sustainable development, which can be developed in TVET institutions.

Research conducted by Solomon (2016) Towards Competence-Based Technical Vocational Education and Training in Ethiopia. The study revealed that in Ethiopia TVET implementation problems were inadequate knowledge and skills level of the instructors in all competency areas. This study also found a lack of coordination between industry and training colleges, and most TVET teachers were not visiting their students while on cooperative training (internship, apprentice, and job attachment) to give them the support they needed and monitor their progress. The study also found inadequate support for TVET teachers, insufficient training materials/ facilities, and inadequate time the trainees spent in practical training.

Salomon's study indicated that the teaching-learning condition was not favorable for individual competency development and assessment. Salomon, in his study, suggested more involvement of the teachers in practical training. Salomon also suggested that future research needs to be carried out to measure the impact of teachers' involvement in the design and implementation of the new educational reform along with other variables on the teacher's motivations toward their classroom.

In their study on TVET Programs in Nigeria, Shirley, Chijioke, and Chukwumaijem (2015) assessed the challenges that Nigerian tertiary institutions faced in attaining quality TVET programs. They used a survey research design and a total of 160 research participants who were registered with the Nigeria Vocational Association. They found that the main challenges that the tertiary institutions in Nigeria were a lack of required TVET facilities, inadequate funding of TVET programs; inferior teaching methods employed by teachers, and inadequate assessment of TVET students' competency. These scholars suggested that adequate funding should be directed to TVET; the government should retrain teachers and provide adequate, quality TVET facilities. They also suggested public-private partnerships as a strategy for quality TVET improvement in Nigeria.

A study conducted by Tambwe (2017) on the challenges facing the implementation of competency-based education and training systems in Tanzania found that although the primary implementers of CBET curricula were teachers, there was a massive challenge in the preparation and recruitment of teachers. Tambwe (2017) found that most of the teachers were recruited based on their qualifications. They lacked the technical teaching basics and required the teacher to possess subject knowledge, pedagogic experience, and practical skills. Tambwe (2017) also found that most teachers lacked cognitive (mental skills and knowledge). Only a few possessed the psychomotor (manual or practical skills) to implement the CBET curriculum effectively. Furthermore, Tambwe (2017) found that there was a lack of infrastructure in most of the institutions. The study found that machinery in the workshop and regular workshops lacked supporting learning, and training materials

such as textbooks are substantive factors that were also revealed as contributing to the effective hindering implementation of competency-based education and training. However, Tambwe, (2017) findings indicated that Tanzania and Namibia have similar situations. Technical vocational education and training play a significant role in providing the skills required by the various economic sectors in Namibia. However, this does not mean that the development of TVET in Namibia has been smooth without challenges. Namibia is of no exception when it comes to issues that characterize the current TVET system. These issues range from an inadequate capacity of TVET trainers to a lack of industry involvement, to inadequate resources at the training centres. The lack of adequate workshop facilities, tools, machinery, and equipment, including learning and training materials, compromises the quality of training outcomes.

The issue of overcrowded trainees in the classroom or workshops also plays a significant role. The current trainer-trainee ratio stands at 1:20 or more for technical programs. This ratio is far too high compared to the International Labour Organization (ILO) standards which recommend a trainer-trainee ratio of 1:15. Thus contributing to a challenge the TVET trainers face daily since the resources available cannot cater to all the trainees.

Another study by Brunette (2006) focused on technical Education in Namibia. A triangulation method, combining qualitative and quantitative was used. The target group was teachers and learners at technical higher schools, trainers and trainees at vocational training centres, the principals, the head of training centres, and personnel officials at the Ministry of Education Directorate of Vocational Education. Both

questionnaires and interviews were used to collect data. In his study, Brunette (2006) indicated the high cost of technical education. The cost of technical education has always been regarded as being very high. The high cost is due to the smaller class size and the need for expensive equipment, facilities, and teaching and training materials Brunette, (2006). Furthermore, Brunette (2006) strongly emphasized that training is irrelevant without equipment and materials, yielding poor results, and trainees cannot find jobs in the industry. The shortages of ministerial funds, materials, and equipment were to such an extent that technical vocational education suffered inequality.

Brunette, (2006) suggested that the maintenance and updating of the Namibian schools' infrastructures are essential to staying relevant in the job market. The lack of facilities for practical work in technical vocational training in most training centres contributes to poor quality. As a result, a paradigm shift in areas such as technical education can be a solution Brunette, (2006).

In Cambodia, Bora (2018) assessed Cambodia's strategy planning for TVET development, 2014-2018 vision. The lack of coherent coordination and consistent sectoral approach has hindered progress in key sectoral institutions. He suggested that to enhance professional skills and career development, support should focus on the image in the sector to create a positive choice.

Namibia Training Authority (2021) used qualitative interviews with 40 educators and administrators in Namibian TVET centers to evaluate CBET practices and challenges within Namibian vocational institutions. This institution reported positive feedback on CBET's relevance but highlighted insufficient teacher training and outdated

resources. It recommended regular CBET workshops for teachers and updated educational materials.

Likewise, Haiping et al. (2022) employed a case study, using surveys with 100 students and interviews with 25 teachers to examine the implementation challenges of CBET in Namibia's rural and urban TVET institutions. These scholars found both face challenges with material access, though rural areas struggle more with infrastructure and skilled educators. They recommended for a prioritization of resource allocation for rural institutions and create mobile training units.

2.3.4 Chapter Summary

This chapter concentrated on the existing literature about TVET in Namibia and other countries, in Sub-Sahara Africa. especially in the developing world. The existing literature proves that TVET is critical for the socio-economic development of every developing nation. However, there is a proof beyond doubt that the institution has not received the attention that it requires to transform the economies of the countries. This research aims to fill this gap in the literature by bringing to view the potentialities of TVET to the national development of Namibia. The emphasis on competency-based education stems from a growing recognition of the importance of direct competence development rather than knowledge accumulation. Implementation, success, and challenges of competency-based curriculum have been reported differently around the world due to a variety of specific characteristics.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methods and procedures that the researcher used in collecting, analysing, and presenting data. It includes the research paradigm, research approaches, research design, geographical area of the study, population, sample size and sampling techniques, data collection methods and procedures, data analysis procedure, ethical considerations, and validity and reliability. The methods adopted in this chapter are guided by the literature.

3.2 Research paradigm

In educational research, the term paradigm describes a researcher's 'Worldview' (Mackenzie & Knipe, 2006). This Worldview is the perspective or thinking or school of thought or set of shared beliefs that inform the meaning or interpretation of research data. The Positivist paradigm believes in the inability to observe knowledge; and pursues an objective search for facts; it also employs empirical or analytical approaches. Furthermore, this paradigm also believes that theory is universal, and law-like generalisation can be made across contexts it also believes that the researchers aim to establish a comprehensive universal theory, to account for human and social behavior (Neurath, 1973; Fadhel, 2002). The interpretive or post-positivism paradigm assumes no single correct method of knowledge (Willis, 1995). Researchers within the interpretive paradigm believe real knowledge is subjective and constructed from people's experiences. This implies that interpretivism assumes that knowledge is socially constructed, and there is nothing like objective knowledge,

but all depend on human thinking and reasoning (Gephart, 1999). Further, within the interpretive paradigm, there is no 'correct' or 'incorrect' answer, but instead, the reality is judged according to how 'useful' is to the researcher and the research participants.

Positivist and interpretive paradigms are ideal for this study because they can be used to conveniently understand how the CBET curriculum within TVET is understood, implemented, and evaluated and why. Also, this will help to understand the implications of the socio-development of Namibia.

3.3 Research approach

Because this study adopted both positivist and post-positivist paradigms, the approach swiftly followed a mixed research approach to satisfy the study's objectives. However, this research leans more toward the qualitative approach. The qualitative research approach is defined by (Maree, 2011) as a research methodology concerned with understanding the process, and cultural context, which underlies various behavioral patterns and is mainly concerned with exploring the participants in their natural environments. Leedy and Ormord (2010) defined the same concepts as a research approach, focusing on the phenomenon occurring naturally in all their complexities. The main characteristic of qualitative research is that it is most appropriate for a small sample, while its outcomes are not measurable and quantifiable. It is a primary advantage that constitutes a fundamental difference from quantitative research. It offers a complete description and analysis of the research subject without limiting the research scope and the nature of participants' responses (Collis & Hussey, 2003). Furthermore, qualitative research is more appropriate for

small samples; however, it is also risky for the results of qualitative research to be perceived as reflecting the opinions of a vast population (Bell, 2005).

3.4 Research design

A phenomenological explorative research design was employed to seek both understanding and interpretation of the meaning ascribed to participants' experience of the TVET curriculum and its efficacy in the development of Namibia. The reason for selecting a phenomenological explorative was that it allows researchers to engage in flexible activities that can describe and help to understand a complex phenomenon (Alhazmi & Kaufmann, 2022). This implies that the phenomenological explorative research design's methods and activities for data collection are flexible, and allow for the analysis to be aligned with the theoretical and philosophical assumptions underlying qualitative research (Alhazmi & Kaufmann, 2022).

3.5 Geographical area of the study

The study area is a generic term used to investigate an individual group or phenomenon (Sturman, 1994). The research was conducted in the Khomas region in Windhoek, and the trainers and trainees from the Windhoek Vocational Training Centre (WVTC) were selected to partake in the study. WVTC is one of the oldest autonomous Technical Vocational Education trainings in Namibia. The institutions can accommodate more than One thousand trainees and Seventy-seven staff. The WVTC was chosen because it was among the first training institutions chosen for piloting the CBET system approach in 2008 on the occupational standards of CBET. Unlike other training providers, the WVTC is currently running two systems concurrently the CBET programs system and the National Trade Testing Centre

programs (NTTC) also known as modular courses hence the researcher chose this institution to easily compare the two system approaches. Therefore, it consists of many experienced trainers. Furthermore, it is in the capital city where the researcher is based. Hence, making it convenient and less costly in terms of data collection.

3.6 Population

The larger group of individuals that a researcher wishes to investigate is termed a population, while the smaller group that a research study is termed a sample (Gall & Borg, 2007). The population of this study was WVTC trainers, including senior trainers and trainees they were chosen because of the role they played as end-users and implementers of the curriculum. The staff complement currently at WVTC consists of three management members, forty-eight academic staff, and twenty-four support staff. Furthermore, the institution has One thousand and ninety-seven trainees currently registered on various TVET programs offered at WVTC through full-time and face-to-face models while Four hundred and three trainees are registered as apprentices through the Work Integrated Learning (WIL) model which is also known as the apprenticeship.

3.7 Sample size and sampling techniques

Nonprobability and purposive sampling were used to develop the sample of eighty (80) TVET experts for this study. According to this sampling method, the members were selected based on their knowledge, relationship, and expertise regarding a research subject (Fredmal et al., 2007). In the study, the chosen sample members had a special relationship and expertise with the phenomenon under investigation and sufficient and relevant work experience in the TVET sector. Approximately 1500

trainees are enrolled at WVTC, with 48 trainers in different fields. Since the study was conducted during COVID-19, the target was 20 trainers and 60 trainees selected purposively, which accounts for 80 respondents. The researcher chose the trainees in levels 2 and 3 as participants, this is because they were able to articulate themselves better hence, they had been in the system for some time, and thus, will do justice to the study.

Table 3.1: Size and sampling techniques

S/N	Respondents	Number of respondents	% of respondents
80	TVET Trainers	20	25%
	TVET Trainees	60	75%
Total		80	100%

3.8 Data collection methods and instruments

This study collected data using document analysis, a structured open-ended questionnaire, and a structured interview (explorative design) (Bezuidenhout, 2005).

3.9 Documentary review

According to (Mogalakwe, 2006) the documentary method categorises, investigates, and interprets written documents (Bowen, 2009) suggesting that a wide array of documents is better, although the question should be more about the quality of the document rather than quantity. The main categories of documents selected and assessed for this study include journal articles, CBET reports, published documents on competent curriculum, and Namibia's 5th and 6th National Development Plan (NDP5 & NDP6). The analysis of documents in this study provided data that was used to confirm and augment the evidence obtained from the questionnaire and interview. In this way, documents were analysed to enrich and strengthen the

trustworthiness of the data. Document analysis focused on the characteristics of the TVET curriculum in Namibia, characteristics of learning outcomes, training, and learning resources, and the mode of assessments.

3.9.1 Structured Survey

Roopa and Rani (2012, p.273), define a questionnaire as: A questionnaire is simply a list of mimeographed or printed questions that is completed by or for a respondent to give his opinion. Furthermore, Mathers, Fox, and Hunn (2007) explain that a questionnaire is a useful tool to consider when conducting a study for several reasons, such as that they are cheaper than personal interviews and faster, especially when the sample is large and widely dispersed. This was done to improve validity and reliability as well as improve ethical consideration of anonymity. The structured questionnaire consisted of closed-ended questions options such as information on aspects such as assurance of employment, environmental protection, and achieving industrialization skills acquisitions (Appendix B). The questionnaire was given to all 80 participants.

3.9.2 Open-ended interviews

Furthermore, the researcher also used an open interview guide in which four trainees and six trainers were interviewed. Open-ended questions sought information about aspects such as characteristics of the TVET curriculum in Namibia, characteristics of learning outcomes, training, and learning resources, mode of assessment, main challenges on the TVET system in Namibia, perspectives of stakeholders on the efficacy of TVET in the socio-economic development of Namibia. The researcher constructed a questionnaire based on the research questions and objectives. The

questions were developed in a way to get the general viewpoints of respondents, as well as in-depth expressions, which were covered by the open-ended section of the questionnaire.

3.10 Data collection procedures

Interviews were scheduled for working days from Monday to Friday. A permission letter was obtained from the Faculty of Education at the Open University of Tanzania to validate the purpose and authenticity of the study. The initial step was to invite respondents, the trainers, to participate in the study via email with the permission of the WVTC management. Due to COVID-19 protocols, trainees were allowed to self-administer the questionnaires. Questionnaires were collected from the trainees after two days during lessons when all of them were gathered in classrooms. Furthermore, the participants were informed about anonymity and confidentiality, that their participation was voluntary, and that they could withdraw from the study anytime they wanted. The research process commenced as soon as the research proposal was approved by the Faculty of Education at the Open University of Tanzania.

3.11 Data analysis procedure

According to Van der Merve, (2005, p.35), data analysis is the system designed in such a way that its meaning, structure, relationship, and origins are understood.

This study adopted a content analysis approach to the qualitative and quantitative data, as suggested by Lacy (2001). According to Bowen, content analysis is the process of organizing information into categories related to the central questions of the research (Bowen, 2009). Content analysis was used from open-ended data from questionnaires, interviews, literature reviews, and document analysis. The main

advantage of content analysis is its systematic approach to qualitative data analysis that identifies and summarizes message content (Neuendorf, 2002). According to Moore and McCabe (2005), this type of analysis allows the researcher to categorize the data into themes and subthemes to be comparable. It is a process of looking at data from different angles to identify key issues in the text that will help understand and interpret the raw data. However, human error is highly involved in content analysis since the researcher is at risk of misinterpreting the data, thereby generating false and unreliable conclusions (Pennebaker, 2008).

The quantitative data from the structured interview were used to support the qualitative information and to minimize this risk. Analysed data was presented in graphs and tables (structured questionnaire). For one-ended interviews, the findings were presented in themes and textual format.

3.12 Ethical considerations

Ethical consideration involves the set of principles that guide research design and practices (Bhandari, 2021). Ethical considerations were carefully observed during this study, and the study was subjected to specific ethical issues. In addition, Leedy (2005) emphasized the need for a researcher to observe human rights and dignity. The researcher obtained official permission from the Open University of Tanzania (Appendix E). This is the letter that was presented to the institution that participated in the study. The study's purpose and aims were made clear to the participants, who were made aware of the researcher's expectations. The consent form was issued and briefly explained to them (Appendix A). They were also asked to sign a contract and withdraw at any time they felt to do so. Both letters aimed to reassure participants

that their participation in the research was voluntary and that they were free to withdraw from participation at any point and for any reason. Besides, participants were also aware of the privacy that their information will be used for the study only as intended; therefore, their information was kept confidential and anonymous.

3.13 Validity and reliability

As Brigitte (2017) pointed out that validity and reliability of qualitative data largely depend on the researcher's methodological skill, sensitivity, and integrity. However, Minichiello et al. (1995) point out that a participant's perspectives on a subject are the individual's 'construction of reality. According to Saunders, Lewis, and Thornhill (2003, p.35), the validity and reliability of the data collected, and the response rate achieved depend, to a large extent, on the design of the questions. They further indicated that a valid question would enable accurate data to be collected; one that is reliable will mean that these data are collected consistently. In this study, the research experience and the research supervisor enriched the content to obtain content-related evidence of validity. They framed the questionnaires to suit the study's objectives.

For reliability, the researcher piloted the research tools to the candidates who were not involved in this study. Their responses validated the research tools' strengths and weaknesses, which enabled the researcher to make corrections before subjecting them to the larger group of research participants.

CHAPTER FOUR

PRESENTATION OF FINDINGS, INTERPRETATION AND DISCUSSION

4.1 Introduction

Following the research methods discussed in the previous chapter, this chapter presents the findings, interpretation, and discussion. The findings were obtained through the methods discussed in Chapter Three. In the proceeding of this chapter, the results are discussed in terms of what the researcher found and what the research participants said. The findings are arranged according to the research objectives. The first part presents the research findings, and the second part presents a summary of the findings, showing the key issues generated from the data.

4.2 Perspectives on the efficacy of TVET in National development

The first objective was to explore the trainer's and trainees' perspectives on the efficacy of TVET in contributing to the realization of the socio-economic development of Namibia. Questionnaires and interviews were used to solicit the information. The question was: *What are your views on the efficacy of TVET in the socio-economic development of Namibia?* The responses of the TVET trainers and trainees from the questionnaire are presented in Table 4.1

Table 4.1: Efficacy of TVET in the Socio-Economic Development of Namibia

Categories under which respondents fall	Efficacy of TVET Frequencies (%)			
	Assurance of Employment	Environmental Protection	Achieve its industrialization	Skills acquisitions
TVET Trainers	8 (40)	4 (20)	2 (10)	6 (30)
TVET Trainees	20 (33.3)	7 (11.6)	9 (15)	24 (40)
Total %	28 (58.4)	11 (25.28)	11 (20)	30 (56)

Table 4.1 shows that the majority of the respondents, (58.4%) had a view that the efficacy of TVET is an assurance of employment. This was followed by (56%) who strongly agreed that the efficacy of TVET was skills acquisition. Its efficacy in environmental protection (25.28% and the achievement of industrialization (20%) were seen by very few respondents.

A follow-up question in interviews was as follows: *What are your views on the efficacy of TVET in the socio-economic development of Namibia?*

In this section, the researcher presents the key findings for objective one according to identified themes notably: the efficacy of TVET in social economic development. The trainers and trainees' perspectives on the efficacy of TVET in contributing to the social economic development of Namibia, suggested that the majority of the respondents had a positive perspective. One strand of its efficacy that emerged from the analysis was employment self-employment, creation of employment, and the possibility of being employed. For example, one participant had a belief that "TVET is important for expanding employment size and improving the quality of employment.," while another participant believed it can help to establish small businesses. Still, another believed "TVET can assure one of employment". These

statements underscore the efficacy of TVET in promoting social and economic development.

Other participants had perspectives of TVET as an innovation. They related TVET as contributing to positive change in education, especially in terms of skill acquisition and competency development rather than academic performance. For example, a participant had a view that “TVET is an innovation to transform the way teaching and assessment is done” while another said that “TVET is an innovation that helps to solve a lot of problems and help people to respond to environmental and development issues as the people work between nature, technology, the economy, and society.” “I believe TVET as an institution is indispensable for personal, community, and human development”. Another participant perceived TVET “as contributing to self-reliance” while another said, “TVET offers skills that one will use for work and life”.

Employment, whether is self, creation of employment, or the prospect of being employed was the top-rated efficacy of TVET in contributing to social economic development in Namibia. They discussed and described employment as an important individual and national achievement needed to minimize poverty. These perspectives were guided by the Social-Constructivist theory (Colgan & Maxwell 2019) that assumes people come to know as they scrutinize and assess their personal experiences with the aid of cultural artifacts. The cultural artifact here is poverty and to them, TVET was able to transform or minimize poverty through employment. One participant had a view that employment is an assurance of getting money to solve

many individual and family problems such as buying food and sending the children to school. They noted that employment was key to human development.

Innovation was considered to be the second most important contribution of TVET in social economic development. Most of them noted that skill acquisition and competency development rather than academic performance was an innovation in the educational sector that helped one to transcend from knowledge to capacity. One participant cautioned that “for the TVET to be real an innovation, there is a need to ensure teaching materials, teaching approaches, and values are geared towards the development of the needed competencies”.

Self-reliance was the third efficacy of TVET in contributing to the social economic development of the nation. The participants held a view that TVET enabled one to be self-reliant and enhanced the acquisition of skills and competencies one would use for work and life.

The findings of this study support the previous research concerning the efficacy of TVET in social economic development (Gakunga, 2014) TVET was found to have a strong link to employment, skill development, and individual capability. We anticipated that the competency-based TVET curriculum would be taken as a key in the discussion of the efficiency of TVET in the social and economic development of the nation; however, we found that not to be the case. Our findings suggest that the strength of TVET is not associated with the transformation of the curriculum per se. Although beyond the scope of this study, it may be that the TVET's strength lies in its ability to solve the individual and national problems of unemployment and dependency, through a competency-based curriculum.

4.3 Characteristics of the TVET curriculum in Namibia

The second objective of this study was to analyse the characteristics of the TVET curriculum in Namibia. The goal was to determine the extent to which TVET in Namibia embodies the elements of competency-based teaching that can produce competent graduates. Questionnaires and interviews were used to solicit the information. The question was: *What are the characteristics of the TVET curriculum in Namibia?* The responses of the TVET trainers and trainees from the questionnaire are presented in Table 4.2

Table 4.2: Characteristics of TVET in Namibia

Items	Type of respondent	Strongly disagree		Disagree		Agree		Strongly agree.		Mean		Standard Deviation	
		NO	%	NO	%	NO	%	NO	%	NO	%	NO	%
The curriculum is aligned with the world of work	Trainers	2	10	3	15	7	35	8	40	5	25	2.55	12.478
	Trainees	6	10	4	6	28	47	22	37	15	25	10.247	17.421
Trainers are competent in using competency-based teaching	Trainers	8	40	4	20	6	30	2	10	5	25	2.236	11.18
	Trainees	18	30	12	20	22	37	8	13	15	25	5.385	9.192
Adequate and quality teaching and learning resources	Trainers	1	5	3	15	6	30	10	50	5	25	3.391	16.956
	Trainees	8	13	4	7	20	33	28	47	15	25	9.539	15.937
Use of Individualised Competency Assessment	Trainers	0	0	3	15	7	35	10	50	5	25	3.808	19.039
	Trainees	6	10	7	12	29	48	18	30	15	25	9.354	15.395

Table 4.2 depicts and analyses the characteristics of TVET in Namibia as revealed by the participants (Trainers and Trainees). Their responses were based on four (4) indicators, of which the first was (i) is the curriculum aligned with the world of work, (ii) are trainers competent in using competency-based teaching, (iii) adequate and quality teaching, and learning resources, and (iv) the use of individualised

competency assessment. Although these indicators have a similar objective, their meanings differ. The majority of respondent trainers (75%), as well as trainees (84%), agreed that the current TVET curriculum in use is matched with the world of work. According to one of the trainers, TVET courses are more practical and provide better job chances. "I have seen TVET graduates form joint ventures to open workshops and small businesses to provide services, and they are doing quite well in the industry, demonstrating that the curriculum is positively responding to the industry needs."

Another trainer adds "TVET is vital in developing skills for self-sufficiency and the labour market, and they found curriculum useful in addressing this".

Another respondent (trainee) revealed that "the course I am pursuing is delivered in a very practical mode and it is preparing me to become self-reliant. "As a result, the researcher concluded that TVET institutions have begun to apply a competency-based curriculum that emphasises not just technical and vocational skills but also those required in the labour market. Mbonde and Minga (2013) argue that a competency-based curriculum is necessary to meet market expectations.

On the second indicator, 60% of trainers disagreed and only 40% agreed, whereas trainees were split 50/50. A respondent (trainer) stated clearly that the government overestimated the effects of the CBT approach's implementation. The respondent, in this case, agreed with Perrenoud (1998), who noticed that the magnitude of the shift in viewpoints is underestimated due to a false sense of familiarity with the language. A response from the (trainee) "at times our trainers can struggle with certain contents on the syllabus or even to operate certain machinery in the workshop, but as students,

we should explore other methods of educating ourselves by using various platforms like YouTube on the internet. and even research". As a result, in this scenario, a competency-based approach necessitates a total rebuilding of training methods and approaches.

On the third indicator, 80% of participants (trainers and trainees) disagreed with the statement, while just 20% agreed. The majority of people recognise that TVET has a relatively unfavorable public image due to low status, low wages, and a lack of professional growth chances. Collectively, (trainers) revealed that poor infrastructure, tools, and equipment are the key concern at most of Namibia's TVET institutions. Material resources include the equipment and tools that offer value and quality to training, hence increasing trainee employability.

Another respondent (trainees) adds, "The issue is not a lack of knowledge on the part of trainers, but rather the limitations inherent in an infrastructural framework." According to a (trainee), "prioritisation of CBT implementation was either not persuaded or happened to get lost in the government pool of priorities." According to (Akupa 2016), many TVET institutions have become unappealing due to a severe shortage of suitable resources such as well-equipped laboratories, workshops, relevant texts, and training.

Although the majority of participants referenced a lack of suitable resources, the remaining 40% of both trainers and trainees agreed on adequate and high-quality teaching and learning materials. A trainer responded, "Given that, the country is struggling with the economic crisis, as trainers we should try to do more with less" because the new economy requires new methods of thinking, managing, and

working. Technical and technological abilities are still crucial, but they must be grounded in individuals' capacity to think strategically.

On the fourth indication, 85% of trainers and 75% of trainees on average agreed on the use of customised competency evaluation. "With the CBET approach system, the trainees are either competent or not yet competent, and thus we use individualised assessment as a yardstick," one of the trainers remarked. Another trainer adds, "Trainees must demonstrate skills and knowledge gained during training as the industry requires competent and skilled artisans."

According to one reply (trainee), "As trainees, we prefer individualised assessment because of the flexibility of the CBET system approach, CBET is flexible in a way that trainees are assessed on their readiness as individuals."

According to a trainer "Although skills assessment remains a challenge in Namibian TVET institutions, despite attempts, industry involvement in assessment is still limited. As a result of low financial ability to examine trainees' real set (trainer), most assessment techniques are still knowledge-based". Evidently, it is a challenge for trainers to conduct assessments effectively either in a real workplace or simulation area due to the lack of industry involvement in TVET and lack of well-equipped assessment centres thus affecting the assessment of trainees, and all this challenge should not be overlooked but rather be tackled.

This section summarises the findings from the second aim, which sought to comprehend the participants' (trainers and trainees') perspectives on the qualities of a competency-based curriculum. The common follow-up question asked was: *what are the characteristics of TVET in terms of a competency-based curriculum?*

According to one participant (Trainer), "TVET is an important component of the education system; through TVET trainees can develop talents, interests, and skills leading to careers in various sectors."

Another (trainer) addendum states that "curriculum helps trainees prepare for occupational fields through the acquisition of broad knowledge and generic skills applicable to a variety of occupations."

Another participant (trainee) expressed her satisfaction with the CBET curriculum, stating that "in comparison to the old curriculum content base, the CBET curriculum provides trainees with more flexible learning options." As they progress, trainees are provided the opportunity to self-assess and modify their performance."

On that point, another (trainee) agreed that "because it focuses on mastering specific skills, CBT informs trainees exactly what is expected of them and improves their readiness for jobs." This line of argument might be accurate in a broad sense that for instance (Becker 1994) human capital concept, knowledge, and skills are the most important forces to drive modern economies.

Another participant advocated for the CBT curriculum because it helps to enhance the interaction between the employer/industry and the training in determining the requisite competency requirements. These findings are in line with Bora (2018) when he said TVET can not only strengthen relationships with employers in the private sector but also strengthen with key partners including parents, communities, and the youths.

As far as the structure of curriculum is concerned there are two significant factors to consider when one looks at a TVET curriculum. The first one is how vocational

curricula are organised and how those qualifications articulate with one another and the second is how knowledge within the individual qualification is structured (Zungu 2015).

Having provided the participants' perspectives on the TVET program, I will shift slightly to highlight how this is particularly important to this study and to TVET in general. It has been stated that the CBET curriculum, with its orientation toward the world of work and skills acquisition, plays an important role in encouraging a country's economic growth and poverty reduction.

It is generally agreed that a modern and responsive TVET curriculum must take into consideration existing and anticipated socio-economic situations. As a result, a modern TVET system must be responsive, which necessitates a curriculum that is fundamentally anchored. To elaborate, an ideal curriculum is one that is responsive to a society's socio-economic conditions while promoting and maintaining quality in the teaching and learning processes. In a nutshell, the success of a curriculum can only be assessed by the level of learning attained by the students.

4.4 Characteristics of Learning Outcomes.

Learning can be looked at, as a change resulting from some form of experience or interaction, and for this to take place, teachers must have knowledge, and understanding of how learning occurs, and to apply certain strategies to make it happen. In terms of the CBET approach, learning is assessed based on whether it is in line with the narrow view of the acquisition of knowledge (what students think they can do) or the broader view of competency, and performance outcomes (what the students can do) in terms of the required standard of knowledge, and or

performance (how well the student can do it). Outcomes can include knowledge, skills, behaviors, attitudes, and values. In assessing the CBET curriculum in Namibia, the following were found to be the learning outcomes: They are context-bound; they are indivisible knowledge, skills, and attitudes are integrated; the learning outcomes are subjected to change, and they are connected to activities and tasks. The CBET learning outcomes require a learning, and development process and they are interrelated (CBET report of Namibia Training Authority June 2016).

From the above learning outcomes extracted from the CBET curriculum in Namibia, it can be said that CBET in Namibia follows the approach to training based on the paradigm of Competency-Based Education and Training (CBET) which fosters trainee-centered whereby the trainer provides meaningful, realistic contexts. In the curriculum, trainees work on one competency at a time and move to the next when competence is acquired in the first one hence, they learn at their own pace. Learner-centered teaching methods include but are not limited to scaffolding, small group discussion, problem-solving, demonstration presentation mind maps evaluation on joint criteria, SWOT analysis projects field trips role play based on real-life situations, case studies, real scenarios, research, and work simulations, and activities. An effective trainer employs flexible instructional strategies that recognise, and accommodate individual differences, and uses a variety of support materials. These findings are in line with the idea of the CBET approach, propounded by Kufaine and Chitera (2013), who suggested that competence is not singled out but is a process of learning, trainees assume responsibility for their learning, manage their own time for learning, evaluate their progress, and assume responsibility for obtaining knowledge.

4.5 Training and learning resources

The development of technical and vocational education and training (TVET) and skills is a major challenge. The TVET system faces numerous obstacles, including inadequate learning and training, a competent workforce, a lack of industry involvement, and a lack of adequate workshop facilities, tools, and machines, among others. According to (Brunette 2006), the high cost of technical education due to pricey equipment and well-equipped workshops continues to impede effective TVET curriculum implementation.

As a result, training is pointless without the proper equipment and resources, as it will produce poor outcomes. Educational resources can have a beneficial or negative impact on educational quality. TVET institutes, like all educational institutions, are supposed to provide high-quality instruction. This necessitates that TVET institutions have suitable training equipment, tools, training materials, supply, practice, and other policy development sector criteria (Ayonmike 2017). As a result, it is important to emphasize that excellent education cannot be realized without proper provision and effective utilisation of educational resources.

To overcome this, it is necessary to connect TVET with industry and other policy development sectors.

4.6 Mode of assessment

Assessment and evaluation of a competency-based curriculum are essential components since they are the ones that assure the validity of all the processes conducted in the implementation stage (Rutayuga and Kondo 2006; Kanyonga et al 2019). The Competence-Based Education and Training (CBET) concept endeavors

to enhance the efficiency, and effectiveness of education and training to meet industry expectations (Ayonmike 2015). Trainers need to have appropriate knowledge and skills in order to develop sound, and effective assessment tools, and evaluation methods. In CBET there are two types of assessments formative and summative. Formative assessment is used for the trainers, and trainees to get feedback regarding progress in attaining intended learning outcomes (ILOs). It identifies the specific learning errors that need to be corrected and reinforces successful performance. For the trainer, formative assessment provides information for making instruction, and remedial work more effective. Summative assessment is being administered at the end of the training programme when all competencies have been taught.

The modes of assessment used in CBET include:

direct observation of work in real work settings or simulations;

performance evidence collected in an off-the-job assessment Centre;

knowledge assessment collected through testing and, portfolios providing current work performed that meets requirements of relevant standards, (NTA CBET report 2016).

According to (the NTA CBET Report 2016), competencies in TVET can be assessed through direct observation as one performs a task, through work supervisors, classroom tests, and evidence from portfolios. While the above were documented in the NTA CBET report, the actual practice was two types of assessments: formative and summative. Formative assessment was used by the trainers to get feedback regarding the progress of the trainees in attaining intended learning outcomes (ILOs)

and this was through classroom testing. Testing normally is used to identify specific learning errors that need to be corrected and to reinforce successful performance. With formative assessment, a trainer gets information for deciding whether to continue or change the instruction and thus, takes us back to teacher-based assessment rather than learner-centered assessment. Others used formative assessment as a criterion for providing remedial work. The summative assessment was administered at the end of the training programme when all the topics had been covered. Trainees sit for a summative examination in the form of written (theory) examinations, and (practical) examinations.

In competence-based curricula, assessments are conducted by collecting information on measuring certain variables to establish a trainer's level of competency (their knowledge, skills, and attitude for a given occupation). Assessment of competency is not only based on knowledge and attitude but primarily on the actual demonstration of the competency. Literary the CBET system approach focuses on what students can do rather than why they do what they do (Ayonmike, 2015). As a result of the competency-based curricular assessment, the individual learner is declared either competent or not yet competent, as opposed to having scored on a certain percentage on a grading scale. In educational institutions, resources are critically important for ensuring wide access to quality practice skills assessment in education and are therefore, selected and used to stimulate interest and motivate learning (UNESCO, 2020). Thus, assessment evidence may be collected from a real workplace or a simulated workplace in which a certain occupation standard is carried out.

From the above modes of assessment used in CBET, it is safe to conclude that the focus is on the traditional, teacher- based or content-based methods of assessments, and evaluation which require the learners to demonstrate their understanding within a limited, set time, rather than learners assessing their own performance. This kind of assessment focuses on classroom-intended learning outcomes (ILOs), which normally measure the recall of facts taught. Very little is on the students' abilities to solve problems in real-life situations. This is a narrow view of competency and cannot be transferred in the workplace of the nation.

This is contrary to DeiBinger and Hellwig, (2011) and Kanyonga et al (2018) who suggested that competency-based assessment should be conducted under conditions that are close to real workplaces, especially to social relevance such as projects based on different social, and economic issues.

In summary, the characteristics of the TVET curriculum in Namibia in terms of the learning outcomes, the teaching and learning resources, and the mode of assessment are teacher-centered and content-based, and is hard to produce skilled, flexible, and abled persons who can participate in the current world-class workforce and ensure sustainability in the working environment.

4.7 Main challenges in the application of CBET in TVET system in Namibia

The third objective was to examine the main challenges that the trainers and trainees face in TVET institutions. A questionnaire and interview schedule were used to solicit the information for this objective. The question was: *What are the main challenges that the trainers face in TVET institutions?* The responses from the questionnaire are presented in Figure 4.1.

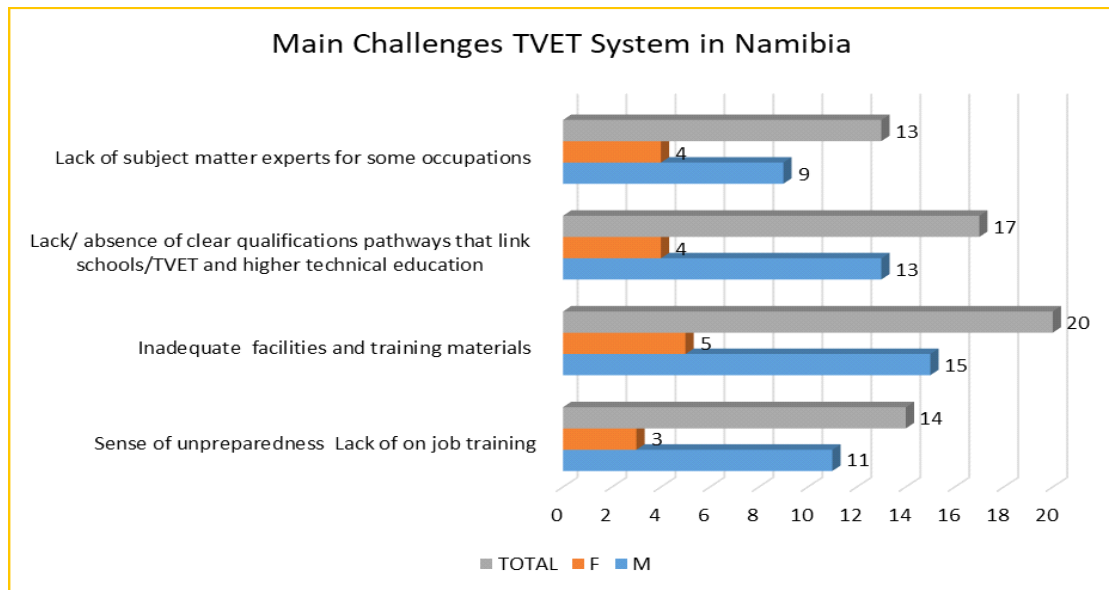


Figure 4.1: Main Challenges TVET System in Namibia

Figure 4.1 indicates that the main challenge that the TVET instructors faced was inadequate facilities and training materials. All (20) respondents have attested to that. This was followed by a lack of qualification pathways that link schools to TVET and higher technical education (17) total respondents. However, a total of (13) of the respondents believe that a sense of unpreparedness due to lack of job training was also a significant challenge facing TVET institutions in Namibia. Follow-up questions in interviews were as follows: *What are the main challenges that the instructors and students face in TVET institutions?*

TVET Trainer 1: *Many classes are overcrowded, and most have inadequate facilities and training materials. Imagine a classroom that was built to train 20 people is used to train more than 40. This puts more pressure on the facility and equipment, especially during practicals.*

TVET Trainer 2: *Training and learning materials remain a very big challenge in many TVET institutions. For example, no prescribed textbooks or training manuals that are contextualized and aligned with the current*

registered occupational standards, and it becomes very hard to contextualize the curriculum

TVET Trainer 3: *Lack of on-job training is a huge problem in Namibia. Most of us learned technical education through a traditional system, without any teaching and learning theories. We find it very challenging to cope with the new CBET system approach with the new technological advancements.*

On the part of TVET instructors, the main challenges identified were lack of job training, inadequate facilities, and lack of subject matter experts for some occupations. These were impediments to their full realization of a competency-based curriculum for development.

The same question was asked to the trainees on the challenges they were facing in the TVET institution. Similarly, a questionnaire and interview schedule were used to solicit the information for this objective. The question was: *What are the main challenges that the students face in TVET institutions?* The responses from the questionnaire from the TVET trainees are presented in Figure 4.2.

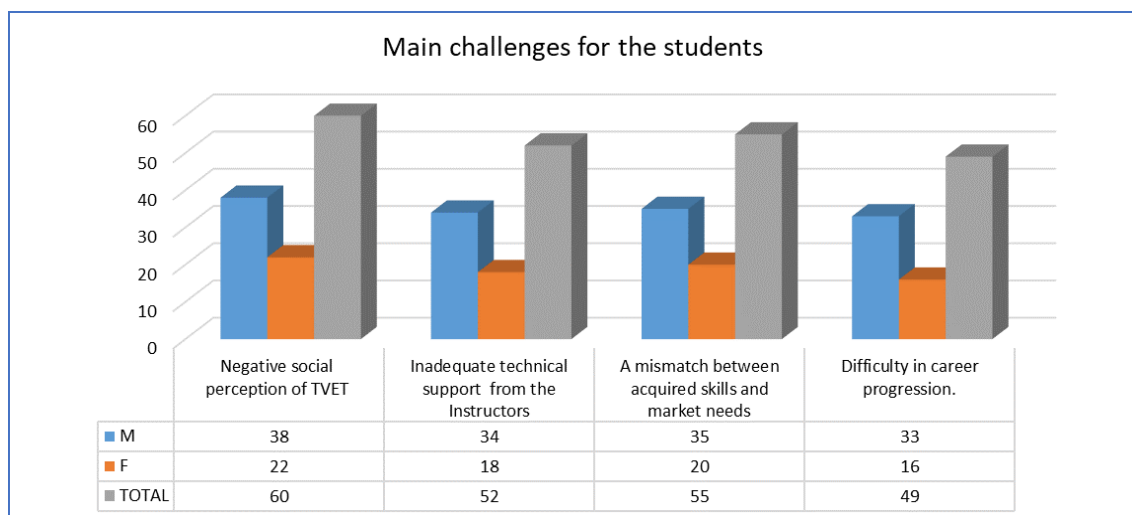


Figure 4.2: Main challenges that the trainees face in TVET institutions

Figure 4.2 shows (60) respondents revealed that there is a negative social perception of TVET among the societies. This is followed by (55) respondents who indicated that there is a mismatch between acquired skills and market needs in the industry. To add on, a total of (52) respondents revealed that there is a lack of technical support from the instructors, and (49) revealed difficulty in career progression.

Trainee 1: *For me the main challenge is the negative perception of TVET compared to academic courses. This negative attitude has led to a lack of political will to support the institution, and this has led to have poor environment for training due to a lack of equipment to train the TVET students.*

Trainee 2: *Some employers in the workplace do not recognise the qualifications of the TVET graduates. Some feel that TVET students are not intelligent enough in their academics, and this could lead to unemployment issues among TVET graduates.*

Trainee 3: *I think the biggest challenge, in my opinion, is that the number of TVET institutions has grown rapidly, but still there are no clear articulation pathways for graduates to articulate into higher-academic level learning. This is a challenge among TVET graduates in terms of career progression.*

In a nutshell, the trainees identified the negative social perception of TVET which negatively affects trainees after completing technical vocational education programs, as well as the mismatch between the acquired skills, the market's demand, and the lack/absence of clear articulation pathways that link schools, TVET, and higher technical education, all of which led to difficulty transitioning from TVET to higher education programs and career progression.

These challenges are in line with those reported in the literature. For example, Tambwe (2017) found that, besides inadequate infrastructure, most teachers lacked pedagogical and practical skills. This is followed by those who believe in the lack or

absence of clear qualifications. Similarly, in Nigeria, Osidipe (2019) found gross underfunding of TVET institutions a challenge that negatively impacted the quantity and quality of facilities and equipment to cater for training. This was also observed in Nigeria by Shirley, Chijioke, and Chukwumaijem (2015), who found a lack of required TVET facilities, inadequate funding of TVET programs; sub-standards teaching methods, and preliminary assessment of TVET students' competency as a key challenge in TVET institutions.

Salomon (2016) in Ethiopia found a lack of coordination between industry and training colleges and inaccessible trainers during practical training as trainers were not visiting their students in the field. In Cambodia, also we can see Bora's (2018) findings on the lack of coherent coordination between the TVET system and the industry.

Thus, it is safe to say that the TVET institution in Namibia has numerous problems, ranging from negative attitudes to institutional lack of finance to implementation weaknesses. These obstruct the effective training of competent personnel capable of contributing to the country's development. To conclude, the findings of the study demonstrated that the success of the economy in many countries including Namibia has been attributed to the ability to link TVET with the national economic development strategies.

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

This chapter provides an in-depth discussion of the findings presented in Chapter 4, interpreting them in light of the study's objectives. Using Human Capital Theory as the analytical framework, I examine how Technical and Vocational Education and Training (TVET) in Namibia contributes to socio-economic advancement. The chapter concludes with recommendations aimed at enhancing the effectiveness of TVET in fulfilling its socio-economic objectives.

5.2 Summary of the Study

The study aimed to explore the perspectives of trainers and trainees about the efficacy of TVET in the socio-economic development of Namibia. Chapter One dealt with the introduction and background of the problem where it laid a background to examine trainers and trainees' understanding of the contribution of Technical Vocational Education and Training (TVET) to the national development of Namibia and the challenges that the TVET trainers face as they transcend from content to competency. Chapter Two presents the literature related to this study. Chapter Three presents the methodology techniques, which include the use of open-ended questionnaires and interviews to collect data, and Chapter 4 presents the findings, which are aligned with the objectives of this study.

5.3 Discussion of Findings

The findings in Chapter 4 revealed that the majority of TVET trainers and trainees view TVET as an essential driver for socio-economic development in Namibia, primarily through employment creation, skills acquisition, and self-reliance. This aligns with Human Capital Theory as articulated by Becker (1993), which posits that investments in education and skills development enhance productivity and, consequently, economic growth.

The study's participants emphasized that TVET contributes to employment opportunities—both in terms of direct employment and self-employment. This finding is consistent with Psacharopoulos and Patrinos (2018), who highlighted that vocational training programs are particularly effective in reducing youth unemployment in developing countries. Employment, as viewed by the respondents, is not only about income but is also perceived as a means of addressing personal and family needs, aligning with Becker's view of education as a means of economic empowerment.

Moreover, innovation was cited as a key benefit of TVET, with participants noting that TVET introduces skills and competencies that foster problem-solving and adaptability. This reflects McGrath and Powell's (2016) assertion that skill-based education promotes adaptability in dynamic labor markets, making individuals more competitive. By equipping students with technical skills and fostering entrepreneurship, TVET supports socio-economic advancement by enabling individuals to create small businesses and contribute to local economies.

Further, the findings revealed mixed perceptions regarding the TVET curriculum's alignment with workforce needs. While many respondents felt that the curriculum prepares students with relevant job-related skills, challenges such as inadequate training resources and limited industry engagement were noted. According to Human Capital Theory, education that aligns with labor market demands enhances productivity (Schultz, 1961). However, the limited resources and insufficient alignment with industry standards weaken this alignment, suggesting that curriculum reforms are necessary for improving TVET outcomes.

Respondents indicated that competency-based training (CBT) is integrated into the curriculum, aiming to ensure that students acquire relevant competencies. Nonetheless, both trainers and trainees highlighted a lack of adequately trained instructors and insufficient infrastructure, which impedes the effective implementation of CBT. This finding echoes the observations of McGrath (2016), who noted that the success of competency-based curricula depends on the availability of well-trained instructors and the active participation of industry in defining competencies.

The primary challenges identified included limited infrastructure, inadequate training materials, and negative societal perceptions of TVET. These findings are consistent with Carnoy's (1995) critique that TVET faces substantial barriers in resource-poor settings, which can undermine its effectiveness in developing human capital. The lack of adequate infrastructure and resources in Namibia's TVET institutions limits students' practical experiences and hinders the development of skills required by the industry.

Negative perceptions of TVET further exacerbate these challenges, as societal attitudes often associate vocational education with low status, making it difficult to attract both students and qualified instructors. This aligns with findings by Tambwe (2017), who found that negative perceptions of TVET in African contexts are a significant barrier to its expansion and effectiveness. The social stigma around TVET not only affects enrollment but also impacts graduates' employability, as some employers may undervalue TVET qualifications.

5.4 Conclusion

The study findings underscore the role of TVET in promoting socio-economic advancement in Namibia. TVET's impact on employment, skill acquisition, and economic self-reliance supports Human Capital Theory, confirming that education and training contribute to personal and national economic growth. However, the effectiveness of TVET is hindered by several challenges, including inadequate resources, lack of industry partnerships, and negative societal perceptions. Addressing these challenges is essential for realizing TVET's full potential in socio-economic development.

5.5 Recommendations

5.5.1 Enhance Industry Partnerships

Strengthening partnerships between TVET institutions and industry stakeholders is crucial for aligning curricula with labor market needs. Regular consultations with industry experts can help in updating competencies and ensuring that training reflects current workplace practices. This partnership could involve internships,

apprenticeships, and on-the-job training programs that enhance students' practical skills and employability.

5.5.2 Increase Investment in Infrastructure and Resources

The Namibian government and relevant stakeholders should allocate more resources to TVET institutions to improve infrastructure and access to training materials. Adequate workshops, modern equipment, and quality learning resources are essential for providing hands-on training and preparing students for the demands of the job market. Funding could also be sourced from private sector partnerships or international development organizations focused on vocational training.

5.5.3 Improve Instructor Training and Professional Development

Continuous professional development for TVET instructors is essential for the effective implementation of competency-based education and training (CBET). Training programs should focus on updating instructors' technical skills and familiarizing them with industry trends. Additionally, instructor certification programs should emphasize the use of innovative, student-centered teaching methodologies that are essential for CBET.

5.5.4 Campaign to Change Perceptions of TVET

To combat the stigma associated with TVET, there should be public awareness campaigns highlighting the benefits of vocational education for personal and national development. Such campaigns can promote the success stories of TVET graduates, thereby encouraging enrolment and support from communities. This shift in

perception could improve TVET's appeal and increase the value attributed to vocational qualifications in the labor market.

5.5.5 Implement Systematic Monitoring and Evaluation

A robust monitoring and evaluation framework should be established to assess the impact of TVET on socio-economic development continually. This framework should include metrics for graduate employment rates, skill acquisition, and employer satisfaction. Regular evaluations will help identify gaps in the curriculum and training practices, enabling policymakers to make evidence-based adjustments.

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APPENDICES**APPENDIX A: CONSENT FORM****Participants' Consent form**

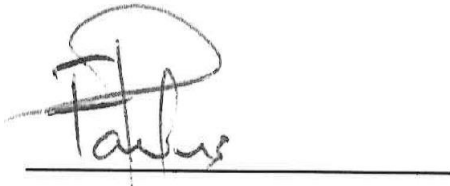
I, _____ a trainee/trainer at WVTC, freely agree to participate, a master's degree student in Education and Curriculum Development and Design of the Open University of Tanzania in this study titled: **Technical Vocational Education and Training (TVET) for National Development of Namibia: prospects and challenges.**

(Trainer/Trainee signature)

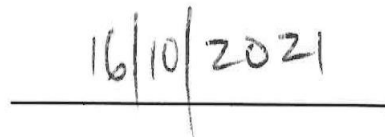
(Date)

Participants' Consent form

I, PAULUS FLAVIO a ~~trainee~~/trainer at WVTC, freely agree to participate, a master's degree student in Education and Curriculum Development and Design of the Open University of Tanzania in this study titled: **Efficacy of Technical Vocational Education and Training (TVET) for National Development of Namibia: prospects and challenges.**



(Trainee/Trainer signature)



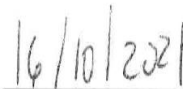
(Date)

Participants' Consent form

I, Eliaser Nailenge a trainee/trainer at WVTC, freely agree to participate, a master's degree student in Education and Curriculum Development and Design of the Open University of Tanzania in this study titled: **Efficacy of Technical Vocational Education and Training (TVET) for National Development of Namibia: prospects and challenges.**



(Trainee/Trainer signature)



(Date)

APPENDIX B: SEMI-STRUCTURED INTERVIEW GUIDE

Dear Respondents,

The main aim of the questionnaire is to collect information that will be used to assess the effectiveness of Competence-Based Training in the Technical Vocational Education and Training (TVET) sector and how it enhances the socio-economic development of Namibia. The research is being conducted as part of the fulfillment of the requirement of a master’s degree in Education.

Therefore, you are requested to answer the questions honestly. Your responses will be used solely for this research. Please do not write your name on any part of this questionnaire

.....

Instruction

Please read all instructions carefully

Please remember that there are no right or wrong answers to questions you are about to answer

To ensure the confidentiality of your answer, do not write your name

Be as objectives as you can

A separate sheet of paper may be used if needed for some of the questions

After completing the questionnaire, please hand it back to the researcher

1. Please describe your concept of Competency-based Education and Training.

.....
.....
.....
.....

2. In your opinion, what features of the Competency-Based Education and Training (CBET) programme need improvement to enhance educational standards in the TVET sector?

.....
.....
.....

3. In your opinion what are the main challenges that you face as you practice the CBET curriculum in terms of:

Your competency in using CBE in training

Trainees attitude towards CBET

Community (college and larger) attitude towards TVET

Teaching and learning resources for TVET instruction

Assessment based on CBET.

Management support in terms of finances and in-service training

.....
.....
.....
.....

4. What are your views about the contribution of TVET to:

Individual social and economic development

The development of local communities.

Development of Namibia in general

5. What do you suggest should happen to ensure that TVET contributes to the socio-economic development of Namibia?

APPENDIX C: DOCUMENTARY REVIEW GUIDE

STATEMENT (OBSERVATIONS)		DESCRIPTION
1.	Characteristics of the TVET curriculum in Namibia	
2.	Characteristics of learning outcomes training	
3.	Learning resources	
4.	Mode of assessments	
5.	Characteristics of the TVET curriculum in Namibia	
6.	Characteristics of learning outcomes training	

APPENDIX D: SAMPLES OF CONTENT DOCUMENT ANALYSIS

<https://www.npc.gov.na/national-plans/national-plans-ndp-4/>

<https://www.npc.gov.na/national-plans/national-plans-ndp-5/>

https://www.npc.gov.na/wp-content/uploads/2021/11/vision_2030.pdf

<https://www.kas.de/documents/279052/279101/Der+Harambee+Prosperity+Plan+II.pdf/>

Appendix E: Clearance Letter

**THE OPEN UNIVERSITY OF TANZANIA
DIRECTORATE OF RESEARCH, PUBLICATIONS, AND POSTGRADUATE
STUDIES**

P.O. Box 23409 Fax: 255-22-2668759 Dar es
Salaam, Tanzania,
<http://www.out.ac.tz>



Tel: 255-22-2666752/2668445 ext.2101
Fax: 255-22-2668759,
E-mail: drpc@out.ac.tz

02/11/2020

TO WHOM IT MAY CONCERN

RE: RESEARCH CLEARANCE

The Open University of Tanzania was established by an act of Parliament no. 17 of 1992. The act became operational on the 1st March 1993 by public notes No. 55 in the official Gazette. Act number 7 of 1992 has now been replaced by the Open University of Tanzania charter which is in line the university act of 2005. The charter became operational on 1st January 2007. One of the mission objectives of the university is to generate and apply knowledge through research. For this reason, staff and students undertake research activities from time to time.

To facilitate the research function, the vice chancellor of the Open University of Tanzania was empowered to issue a research clearance to both staff and students of the university on behalf of the government of Tanzania and the Tanzania Commission of Science and Technology. The purpose of this letter is to introduce to you **LEENA NELAGO TEOPOLINA AKOOKO, REG. NO. PG 201700028** who is a Masters student at the Open University of Tanzania. By this letter, **Ms Akooko** has been granted clearance to conduct research in Namibia. The title of her research is **“EFFICACY OF TECHNICAL VOCATIONAL EDUCATION AND TRAINING (TVET) FOR DEVELOPMENT OF NAMIBIA: PROSPECTS AND CHALLENGES”**. The research will be conducted at Windhoek Vocational Training Centre (WVTC) in Namibia. The period which this permission has been granted is from **10/01/ 2021 to 09/03/2021**. In case you need any further information, please contact:

The Deputy Vice Chancellor (Academic); The Open University of Tanzania; P.O. Box 23409; Dar Es Salaam. Tel: 022-2-2668820

Yours sincerely,

**Prof Hossea Rwegoshora
For: VICE CHANCELLOR
THE OPEN UNIVERSITY OF TANZANIA**

Appendix F: Research Letter



NAMIBIA TRAINING AUTHORITY

Enquiries: Ms Julia Muetudhana
Tel, 061 -207 8577

24 August 2020

All Centre Managers

Dear Centre Managers,

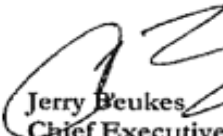
RE: PERMISSION TO CONDUCT RESEARCH STUDY

As per the recommendation letter from the Open University of Tanzania, Ms Leena Akooko currently employed at the Namibia Training Authority as the TVET: Standards Development Coordinator in the TVET standards division she is registered for Master in Education Curriculum Design and Development at the afore mentioned institution. Ms Akooko is currently conducting her academic research on: *Technical Vocational Education Training (TVET) National Development of Namibia: Prospects and Challenges*. For that reason, she will be visiting vocational education and training providers to collect the required data for her dissertation.

May I please ask you to render her any assistances she may need in this regard.

Alternatively, due to Covid 19, the researcher may conduct virtual workshops, which I believe will yield the same results as the face-to-face workshops.

Yours Sincerely,


 Jerry Beukes
 Chief Executive Officer



Appendix G: Editorial Certificate

EDITORIAL

Certificate



Author(s):

LEENA NELAGO TEOPOLINA AKOOKO

Document Title:

TECHNICAL VOCATIONAL EDUCATION AND TRAINING (TVET)

FOR NATIONAL DEVELOPMENT OF NAMIBIA: PROSPECTS AND CHALLENGES

This document certifies that the above manuscript was proofread and edited by Nico Research & Consulting CC. The document was edited for proper English language, grammar, punctuation, spelling and overall style by one or more of our academic editors. The editor endeavoured to ensure that the author's intended meaning was not altered during the review. All amendments were tracked with the Microsoft Word 'Track Changes' feature. Therefore, the authors had the option to reject or accept each change individually.

02-Nov-2022

Date Issued



Signature



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