



QUALITY TECHNICAL VOCATIONAL EDUCATION IN BOTSWANA:

A KEY REQUIREMENT FOR CURRICULUM DEVELOPMENT

Dissertation Manuscript

Submitted to Unicaf University in Zambia

In Partial Fulfillment of the Requirements for the Degree of

Doctorate of Education (EdD)

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April 2025

## Approval of the Thesis

### QUALITY TECHNICAL VOCATIONAL EDUCATION IN BOTSWANA: A KEY REQUIREMENT FOR CURRICULUM DEVELOPMENT

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## Abstract

### QUALITY TECHNICAL VOCATIONAL EDUCATION IN BOTSWANA: A KEY CONSIDERATION FOR CURRICULUM DEVELOPMENT

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This study explored the quality of technical and vocational education as a key requirement for curriculum development. The research explored the current level of involvement of lecturers in curriculum development and the alignment of curricula of Certificate and Diploma levels. The 21<sup>st</sup> century technological advances had challenged Botswana's technical and vocational education sector to relook at their curricula competitiveness. The literature had revealed that non-involvement of curriculum implementers during curriculum development resulted in a congested curriculum and insufficient resources. This study investigated how lecturer involvement and alignment of Certificate and Diploma curriculum can promote the quality of technical and vocational education in Botswana. More focus was placed on the involvement of lecturers during curriculum development and the alignment of curriculum between the certificate and diploma offering levels. The study used high breed convergent parallel mixed method which combined qualitative and quantitative methods. Combining the two methods provided a deeper understanding of the phenomena under study. The study findings revealed that, though lecturers are key during delivery, their involvement during curriculum development is very minimal. Majority of the lecturers are involved at the implementation stage. Furthermore, the lecturers had mixed perceptions regarding the competency of the current curriculum as they reiterated that, needs analysis was not carried out before implementation of the curriculum framework in use. The results also confirmed that a quality curriculum would promote the creativity and innovation of the students. The findings authenticated that an aligned curriculum is key in education as it assists; policy makers, easy

transition and upgrades student performance as they would link their previous knowledge with the current information being taught. Finally the study revealed that, the involvement of stakeholders in curriculum development has positive implications such as reduced skills mismatch, improved curriculum relevance, assist in content coverage, it aligns resources and teaching methods. The research recommended that, for quality curriculum to be developed, the Ministry of Education and Skills Development should ensure that capacitation of both curriculum developers and implementers is included in the curriculum framework. Furthermore the Ministry should emphasise collaboration and harmonization of the Certificate and Diploma curriculum development process.

**Keywords:** Curriculum Framework, Curriculum Implementation, Curriculum Alignment, Stakeholders, and Quality Curriculum.

### Declaration

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## AI Acknowledgment

### Non-use of AI

I acknowledge that I have not used any AI tools to create, proofread or produce any text or ideas related to any draft or final versions of the thesis.

## Dedication

I dedicate this thesis to my Supervisor, Professor Helen Adebola and to my daughter, Bosa Mphoeng.



## Acknowledgements

Above all I would like to give gratitude to my Lord Jesus Christ for the strength and courage He accorded me till this far. To God be the Glory. My sincere acknowledgements goes to my supervisor Professor Helen Adebola for her professional and sterling guidance throughout this chapter and her quick response whenever I needed her guidance. Though she is far I always felt like she is nearer. Thank you Professor Helen Adebola. Furthermore, my earnest appreciation extends to the Ministry of Education and Skills Development which accorded me study permits and study leave during my entire study period. Additionally, my gratitude further extends to UNICAF University which offered me scholarship and chance to study this degree. Finally many more thanks to my mother, daughter Bosa Mphoeng and her husband Amantle Mphoeng for encouraging me throughout this academic journey.

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### List of Abbreviations

ADDIE:	Analysis Design Development Implementation Evaluation
BNQF:	Botswana National Qualification Framework
BNVQF:	Botswana National Vocational Framework
BOTA:	Botswana Training Authority
BQA:	Botswana Qualification Authority
DTVET:	Department of Technical Education & Training
ESD:	Education for Sustainable Development
ETP:	Education & Training Provider
ETSSP:	Education and Training Sector Strategic Plan
HRDF	Human Resource Development Fund :
ICD:	Integrated Course Design
SAQA:	South African Qualification Authority
NCQF:	National Qualification Framework
RNPE:	Revised National Policy on Education
SDG:	Sustainable Development Goals
TEC:	Tertiary Education Council
TVET:	Technical Vocational Education & training
ZIMCHE:	Zimbabwe Council of Higher Education

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## CHAPTER 1: INTRODUCTION

### 1.1. Background of the Study

The significance of a quality technical and vocational education in preparing students to acquire the skills required in the market and to grow the economy cannot be overemphasised. Nevertheless, concerns about the competence of the graduates of technical and vocational education in Botswana have occurred leading to high unemployment rate due to mismatches of the graduates to the industry needs. This might be attributed to the quality and relevance of the technical and vocational education curriculum in addressing industry and societal needs. This study seeks to investigate the key issues affecting the development of a quality curriculum and propose a framework for developing a programme that can respond to the needs of the nation and the industry. The research will focus on lecturer involvement in curriculum development and curriculum alignment of the Certificate and Diploma levels. The expected result of this study is to come up with a curriculum framework that will close the gaps and address the employer and societal needs with the intention of curbing the challenges of unemployment.

Of recent, Botswana's technical and vocational education sector had revised its curricula and shifted from a traditional education system to an outcome based education system with the aim to incorporate industry driven skills training. Wani (2020) described an outcome based education system as a method of education whereby, curriculum is coined in a way that the exit outcomes the learners acquire at the end of the program reflects professional knowledge, skills, abilities, values and attitudes-instead of the educational process. Thus it is a system of education whereby what the learner should achieve is determined before delivery and the main objective is for the learner to achieve the skill not the grade. This move was also enthused by the Botswana's transformative blue print vision 2036. The blue print's motive is to transform Botswana's economic standing from a middle-income country to a high-income

country (Presidential task team, 2016). In line with this move, the technical and vocational education and training sector (TVET), has been entrusted with the production of entrepreneurially skilled, innovative and creative graduants who can create jobs and are market ready. Despite the vision of Botswana and other policies that had been produced for the TVET sector, the technical and vocational education sector graduates are still under employed and cannot create their own jobs regardless of the government's efforts of affording them grants through the Ministry of Sports and Youth Development. Regarding this the researcher is motivated to investigate the quality of the curriculum development process.

Curriculum development is the backbone of any education system. A well-crafted curriculum can boost the innovativeness and creativity of the graduates. Curriculum should be designed such that it meets the short and long-term needs of the nation (Primrose & Alexander, 2013). To achieve that, there is a need for the involvement of the all the stakeholders to ensure that the curricula satisfies stakeholder needs. Scholars have investigated the effectiveness of a quality curriculum in technical and vocational education but mismatches still occur in how to develop a relevant and quality education in Botswana. This study sort to give perceptions that can close the gap during the development of curriculum of both the certificate and diploma curriculum. Furthermore, this study strives to provide insights on the importance of fully involving the curriculum implementers during curriculum development. This echoes well with the sentiments of the Minister of Education and Skills Development Dr Douglas Letsholathebe's remarks at the technical and vocational education symposium in Gaborone where he said,

“Technical and Vocational Education Training (TVET) is an assured tool for reshaping Botswana's future and accelerating its economy as it provides trainees with up skilling and reskilling opportunities thereby enabling them to effectively participate in the country's socio-economic development”.



These remarks call for a curriculum that will prepare the learners for lifelong learning and ensure that the skills acquired correspond to those needed by the society and industry. To achieve that, there is a need for a partnership between the stakeholders and the curriculum developers during curriculum development.

### **1.1. Statement of the Problem.**

Quality curriculum development requires the input of both the external and internal stakeholders. The inclusion of the stakeholders ensures a healthy allied education system in terms of currency, accurateness and applicability of the teaching and learning methods. Furthermore, the stakeholders ensure the creation of a quality product, which is knowledgeable, and skilled (Agnew Agnew, 2021). The study problem statement to be addressed is the segregation of the Certificate and Diploma offering curriculum developers which led to misalignment. This separation often results in distinct pathways that may not adequately prepare students for the realities of the job market. As a consequence, curriculum developers might focus on different skill sets and competencies for each level, leading to inconsistencies in the skills taught and the requirements expected by employers. This misalignment can create gaps in knowledge and training, where graduates from both programmes may lack essential skills that are increasingly demanded in various industries. Furthermore, it can hinder collaboration between institutions, limiting opportunities for students to transition smoothly from one level of education to another. Ultimately, this segregation can affect employability, as graduates may find themselves underprepared for the roles they aspire to fill, moreover, contributing to ongoing workforce skill shortages and economic inefficiencies. Furthermore this gap need to be addressed to ensure easy transition among levels.

The other problem to be addressed is the minimal involvement of the lecturers in curriculum development which resulted in the increased unemployment rate. Bolaane et al (2007) in their study findings concluded that nearly 50% of TVET graduates are unemployed.

The consequences are that, as job prospects diminish, potential students may be less inclined to enrol in TVET programmes, leading to decreased participation. This shift often results in changes in programme demand, with learners gravitating toward fields perceived as more secure. In order to develop a quality curriculum, it is fundamental to fully involve the lecturers and industry stakeholders so as to strengthen the teaching approaches and address the needs of the industry. Wright (1995) carried out a study which revealed that minimal participation of lecturers in curriculum development affects the quality of education in terms of teaching resources required and teaching methods.

In his article on curriculum development in anesthesia, Wong (2006) posited that, an effective curriculum development embraces the input of stakeholders needs. Curriculum development in Botswana is experiencing a significant change from traditional education system to outcome-based education with the aim of addressing both the short term and the long-term sustainable development challenges. This type of education emphasis on the conversion of the new acquired knowledge in to new products and services. This study has its influence from the constructivist theory which encourages relevant pedagogical experiences that enhances the acquirement of knowledge, skills and attitudes, which learners are going to use in their professional life (Vades & Reed, 2020).

As a crucial educational process, the development of the curriculum should meet the needs of the nation. This resonates well with the National address by His Excellency Dr. M. E. K Masisi, President of the Republic of Botswana (2022) who sentimented that, “the Ministry of Education and Skills Development has to ensure that Batswana have the requisite skills that transform them in to a productive workforce not just for the domestic market but also for the global economy”. The requisite skills can be attained by the involvement of the relevant lecturers during the development of the curriculum and a suitable curriculum framework in place.

Botswana's technical and vocational education's vision is job creation and self-employment. In the quest to ensure the effectiveness of TVET sector Botswana has rationalized its ministries and during the exercise, it birthed a new Ministry of Entrepreneurship. The main purpose of this ministry is to develop skills of entrepreneurship. Therefore, in an environment that supports learning, there is a need for a new research that will examine the importance of a curriculum development that focuses on entrepreneurial education, and encourages creativity and innovativeness among the programmes.

## **1.2. Purpose of the study, Research, Aims and Objectives.**

### ***1.2. 1. Purpose of the Study.***

The purpose of this study is to investigate the implications of the minimal involvement of the lecturers in curriculum development and how it impacts the quality of curriculum implementation in terms of relevance of the teaching and learning resources, pedagogy and learner competitiveness. Secondly the study aims to explore the impact of the segregation of the certificate and the diploma curriculum developers during curriculum development regarding curriculum alignment and learner transition among the levels. With that, the research strives to guarantee that the curriculum developed is of quality in terms of currency, relevance, alignment and providing the learners with required knowledge and skills.

The study has both quantitative and qualitative approaches (convergent parallel mixed method approach). The study will mainly use questionnaires and focus group interviews for triangulation purposes. For this study, the entire staff for the programmes offering Certificate and Diploma, Curriculum Development personnel and the Quality Assessment and Assurance unit who are under study will be interviewed. This is so because the population under study is small. It is consensus among scholars that for small populations of hundred or less, the entire group should be studied (Aina, 2002; Cresswell, 2003; kalusopa, 2011) . The study of the entire population is a census. In this, case a census approach is applicable. The study will use

purposive and convenience sampling. The two sampling techniques are used because firstly the lecturers, curriculum developers and the Quality Assurance officer are knowledgeable and conversant with the subject under study. Convenience sampling is relevant for the curriculum developers and Quality Assurance officer because of their proximity. The participants are chosen basing on their levels of operation. The questions will be organized such that they include both curriculum development and quality processes, which address the research questions and research purpose.

### ***1.2. 2. Research Aims and Objectives.***

Within the context of the mission of the Ministry of Education and Skills Development, the ministry envisions to deliver an education of high value that add value to the nation's socio economic and technological advancement. The overall purpose of the sector of technical and vocational education is to develop a human capital that can sustain and diversify the economy of the country. This can be done through the development of a curriculum which can empower the youth and accelerate job creation. The overall aim of this study is to investigate the quality of technical vocational education sector in Botswana as a key requirement for curriculum development. The quality is investigated in terms of the involvement of the curriculum implementers in the process of curriculum development and their understanding of the curriculum framework that is currently in place. It further focuses in the alignment of the Certificate and Diploma curriculum. The intention is to establish whether there is a link between the Certificate level and the Diploma level curriculum with the goal of ensuring smooth transition from one level to the other and easy transference of skills.

The specific objectives are:

- i. To explore the competency of the technical vocational education curriculum frame work in place

- ii. To discover the factors that are required to produce a quality technical vocational education
- iii. To investigate how certificate and diploma curriculum alignment can be maintained
- iv. To establish how involvement of stakeholders can benefit the Botswana technical vocational education curriculum development.

### **1.3. Nature and Significance of the Study.**

#### ***1.3.1. Nature of the Study.***

The proposed study will use both qualitative and quantitative research designs (Convergent parallel mixed method approach) in four Technical and Vocational Education institutions (TVET), two Brigades, the curriculum developers and quality assurance officer will participate in Botswana. Among the four institutions, two institutions offer both Business studies and Hospitality and Tourism programmes at Diploma level. While one institution offer, both Business studies and Hospitality at certificate level. Lastly, one institution offer Business studies only at certificate level. The intention of the study is to understand whether the curriculum offered in TVET sector is aligned, allowing for easy transition from one level to another. Moreover, to examine the level of involvement of the lecturers during curriculum development permitting for planning for relevant infrastructure, teaching and learning resources that enhances the competency of the graduates respectively. As an employee of the Department of Teacher Training and Technical Education, I have access to the above institutions as such data collection and research expenses will not be a challenge. The research consists of the following participants, 43 lecturers from the Diploma offering (N=43); 49 lecturers (N= 49) from certificate offering; seven staff members (N=7) from the Curriculum development unit and one member (N=1) from the Quality Assurance and Assessment unit (QAA). The population of 100 lecturers was used in the study because this was the targeted group. There are only two Diploma colleges that are offering the two programmes under study

in Botswana furthermore the Brigades though many, not all of them offer the programmes under study. Additionally even those that offer the programmes they do not have a higher number of staff compliments that is why the population is small and I had to involve all of them in the study. Similarly with the Diploma programmes they are offered in two public colleges.

Three methods of data collection were found appropriate for the study that is, face-to-face interviews with curriculum developers and a semi structured questionnaire for lecturers from both Technical Colleges and the Brigades which was distributed physically and online. Phone interviews will be used for the lecturers who are far away from my place of work. Focus group interview will be used with the curriculum development personnel. The data will be analyzed using five Likert scale to rate the views and the opinions of the lecturers and triangulate with the focus group interview; these methods will be helpful in obtaining quality data.

### ***1. 3. 2. Significance of the Study.***

The increasing demands of skilled human resource in the Botswana calls for a curriculum blue print, based on the trends of globalization. Graduates should be equipped with skills which can be used to convert their knowledge in to the demands of the nation (Primrose & Alexander, 2013). Furthermore, technical education should train personnel who can be inventors, architects and implementers of the technological development of the nation (Okoye & Arimonu, 2016). Nuru (2009) in (Okoye & Arimonu, 2016) orated that, transformations in the economy of any nation is necessary to prepare youth for the future jobs, in this case, technical and vocational education has a significant role to play. Moreover, they added that, a well-developed curriculum system would lead to a self-reliant and sustainable nation (Okoye & Arimonu, 2016). To achieve this, the internal and external stakeholders should inform curriculum development.

Botswana's technical and vocational education system is witnessing a turnaround with the intention of addressing the current and future challenges. Currently, the sector is moving away from a traditional based education system to an outcome-based education. This turn around has been informed by the high number of TVET graduates who are unemployed. The high employment rate experienced is due to the dissatisfaction of the employer with the product of the TVET as they say it is not competent enough to meet its job requirements. Due to that, the graduates could not be absorbed in the labour market. To combat the unemployment challenge the curriculum development unit should sort for the input of both the internal and external stakeholders and thus have a collaborative curriculum blue print.

The significance of this research is that, there will be an alignment and harmonization of the curriculum among the TVET institutions. The alignment will allow for an easy transition from one level to the other. The inclusion of the implementers will allow for quality of instruction and resources (Merfat, 2016). Industry involvement will help the TVET sector to form a collaborative approach with the industry where by the industry and the sector can collaboratively work together in terms of carrying out the training processes and the review of the programs. The industry will also help in closing the gaps that might be encountered during program delivery by providing on the job training for lecturers. Oviawe (2018) added that, some lecturers who are on the job might not be abreast with the new technologies, and that will result in the production of incompetent graduates who are not required in the labour market. He further said to avert the situation; there is a need for the formation of a public private partnership with TVET. The partnership will also support the students training in terms of current technologies required in case the institution cannot afford.

#### **1.4. Research Questions and Research Hypothesis.**

##### ***1.4.1. Research Questions.***

The research questions that guide this study are as follows:

RQ1: In what ways can the competency of the technical and vocational curriculum framework be enhanced?

RQ2: What steps can the technical and vocational sector consider to effectively ensure the development of a quality curriculum?

RQ3: How does misalignment between certificate and diploma curriculum affect learner progression among the levels?

RQ4: To what extent does lecturer involvement in curriculum development benefit the Botswana technical and vocational education sector?

#### ***1.4.2. Research Assumptions/Hypothesis.***

- i. It is assumed that all sections of technical and vocational education are using similar curriculum framework what differs is the content coverage as such there is a need for curriculum developers to collaborate.
- ii. The global competitiveness of a Nation is influenced by the quality of its education system
- iii. It is assumed that the transition of learners from one level to another is influenced by the alignment of curriculum among the levels
- iv. Ho: There is minimal engagement of curriculum implementers in curriculum development.

#### **The hypothetical framework**

The research is based on the evidence that lecturer involvement in curriculum development is determined by the national policies. This research hypothesis that, minimal engagement negatively impacts the quality of curriculum and the learner competencies. The suggested frame work is guided by the constructivist theories which underscores the significance of the educators' involvement in the development of a quality curriculum.



## **Summary.**

In summary, this chapter had discussed the motives behind the shifting of the curriculum development process of technical vocational education from a traditional education system to an outcome based education system. It has also discussed the statement of the problem, which its focus is on the quality of curriculum development in terms of the involvement of the lecturers. It had been stated that, the Botswana technical and vocational education is experiencing a shift from the traditional education system which is teacher centered to an outcome based education system which is learner centered. This shift emanated from the legal statutes such as Botswana's transformative blue print vision 2036 which intends to transform the country from a middle income economy to a high income economy. TVET has been mandated to come up with an education system which would produce entrepreneurially skilled, innovative and creative learners. The purpose of the study had been discussed as to investigate the quality of the Botswana technical and vocational education curriculum development. More focus was on curriculum alignment between the certificate level and the Diploma level. It is important to align the two because one feeds the other. Curriculum alignment can also enhance the learner's performance. The nature of the study was described in terms of the methodologies, study population and data collection instruments that are going to be used in the study. The significance of the study to Botswana nation was also elaborated and finally the research questions and hypothesis were outlined.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1. Introduction.**

Botswana like most of the countries globally envisions to produce competitive and productive human resource. This vision can be achieved through the development of a quality education system. Many scholars and governments alike concur that education is fundamental for human development (Anudo & Orwa, 2020). This study is focused on the sector of education which deals with technical and vocational education and training (TVET). TVET is a branch of education that has a reputation for boosting economies and changing the livelihoods of those who receive it (Idjawe, 2020). Moreover, it is worth noting that there is no country that can develop beyond the capabilities of its human resources. In that context, it is critical for the education sector as an industry that is responsible for human development to come up with a curricular that is globally competitive. People are believed to be the key to every country's ability to modernize, develop, and become globally competitive (Ikenga, 2022). For the human resource to be globally competitive, there is a need for a quality curriculum in place. Technical and vocational education and training (TVET) is recognized as the driving force behind any country's economic transformative efforts to disengage its prosperity from its resource use by promoting technology and innovation and development of human capital. (Ikenga, 2022).

Globally all countries desire to have a competent workforce that can sustain them to be independent both politically and economically. This reality is unavoidable in the sense that TVET is regarded as a key element in the achievement of socioeconomic development in any nation (Ikenga, 2022). Moreover, there is no country that can develop technologically, industrially, and economically without, the development of a robust invention of sustainable goals and technical and vocational education systems. The aim of TVET should be to reduce unemployment, foster wealth, job creation and self-reliance (Okwelle & Deebom, 2017). Most

scholars of TVET concur that a relevant curriculum for technical and vocational education can equip the learners with the skills, knowledge and attitudes. Equally important, the curriculum development should include all the stakeholders who are consumers of the curriculum. Collaboration with stakeholders will assist in closing the gaps which the curriculum development officers might be having.

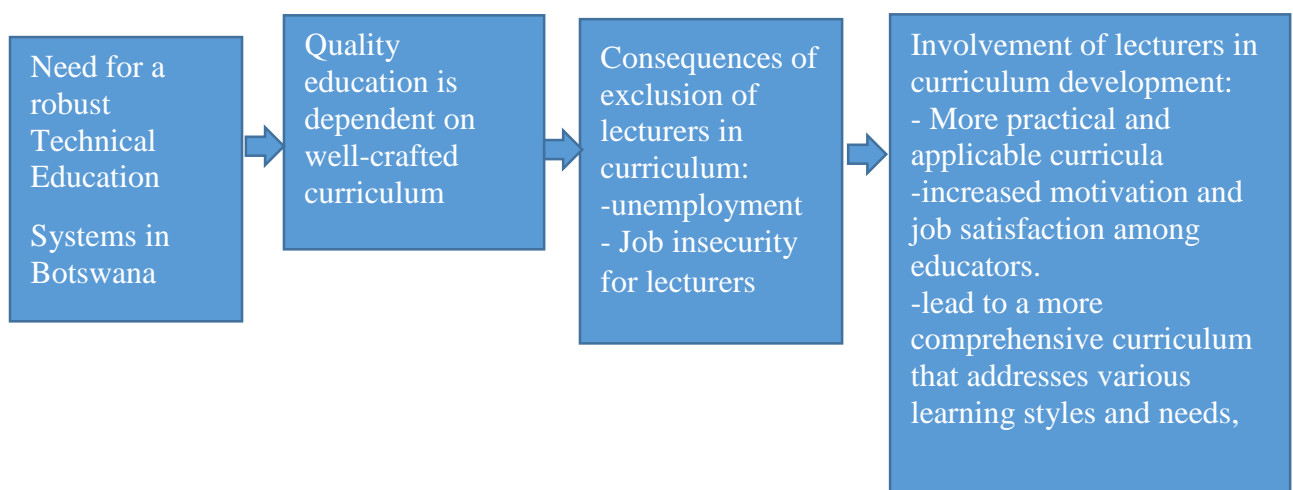
The investigation of this literature review mostly used peer reviewed journals, book chapters' articles which are used in education and research. The literature resources used in this study were mainly from Google scholar, Erick journals online, ebscohost and proquest online journals. I would like to declare that there is minimal current literature about technical and vocational education in Botswana. As such most of the information was from the studies published in the past.

## 2.2. The conceptual framework.

The conceptual framework provides a justification for carrying out the research by stating the fundamental concepts and associations that support the study. It pinnacle the importance of the study, enlightens the prevalent gaps and substantiates the need for the research to be undertaken by connecting theory and practice (Leshem & Trafford, 2007) The figure below shows the conceptual framework for this study.

**Figure 1**

*The Schematic Representation of the Study Concepts*



The schematic representation outlines the problem connecting the need for a robust technical education systems in Botswana, the importance of curriculum quality, the consequences of exclusion of lecturers in curriculum development which includes unemployment for the graduates, job insecurity for lecturers, ineffective training among others. On the other hand involvement of lecturers in curriculum development will lead to more practical and applicable curricular, increased motivation and job satisfaction among lecturers, leading to a more comprehensive curriculum that addresses various learning styles and needs.

### **2.3. Theoretical Framework.**

In research a theoretical framework is very fundamental as it is a theory or theories in which a study is anchored upon. To support the above sentiments, Braidotti (2019) resonated that “a theoretical framework is a reflection of the work the researcher engages in to use a theory in a given study”. The theoretical framework further offers a concrete base for the literature review and most importantly the data analysis and testing procedures. (Varpio, Paradis, Uijtdehaage, & Young, 2020). Varpio, Paradis, Uijtdehaage & Young (2020) further differentiated a theory and theoretical framework by that;” A theory is a set of suggestions that are inter related, conveying the relation(s) among several different constructs and propositions while on the other hand a theoretical framework is a logically developed and connected set of concepts and premises developed from one or more theories that a researcher creates to scaffold a study.”

When coming up with a theoretical framework, it is crucial for the researcher to explain all the perceptions and the theories that determine the basis of the research, that is, bring them together logically and relate them to the study topic which is being investigated. Designing a theoretical framework is crucial as it gives researchers a blue print which assist them to align their study questions and produce reliable and valid results (Lynch, Ramjan, Glew, & Salamonson, 2024).

The rising demands for skillful labour globally seeks a robust technical and vocational sector that will meet these demands of the society. To satisfy these demands a country needs to have a curriculum, which can produce quality graduates with skills that can convert the economy of the country from a resource based economy to a knowledge-based economy. To achieve this, there is a need for a collective approach of all the relevant stakeholders during curriculum design. The stakeholders in this case are the lecturers and the industry. It is my assumption that, a collaborative approach between the sector and stakeholders will enhance the relevance and quality of technical vocational education. A relevant curriculum would reduce the youth unemployment rate and thus improve the livelihoods of the youth. The intention of this research is to investigate the level at which technical vocational education curriculum developers involve the implementers (implementers and the consumers) during curriculum development. Implementers (trainers or tutors) are needed to ensure that the national curricular developed is aligned to the current infrastructure and technologies while on the other hand the industry is necessary to support in terms of the currency of the required expertise.

Key terms: quality, quality education, Quality Technical and Vocational Education curriculum development,

### ***2.3.1. Definition of Terms.***

#### **Quality**

Many scholars assert that there is no one fit all definition of quality. That is, there are various definitions of quality. Even so, they all concur that a quality product is one, which is fit for purpose or it is a substance that exceeds customers' expectations and has a minimal deviation from the targeted goal. (Sandbakk, Walther, Solli, Tønnessen, & Haugen, 2023; Mari & Bjorn, 2018). Mari & Bjorn (2018) described quality in three folds; firstly, they said it is the extent to which an attribute meets its requirements that is; processes, outcome or the service provided. Secondly, it is a comparison of the integral features to the set standards and finally

the extent to which the set standards satisfies the desired product. In concurrence with the above, Budiharso & Tarman (2020) said that the worth of a merchandise or a service is measured by the extent to which a customer or a stakeholder is satisfied. In summary, a product that satisfies the customer and stakeholder expectations is considered to be of quality. Moreover, it is a product that meets all the required standards.

In education, for example, quality can pertain to the effectiveness of teaching, the relevance of curricula, and the overall learning experience. In the context of this study, Quality refers to the degree of excellence or the standard of something, often assessed based on its ability to meet specified requirements, expectations, or standards (Arcoro, 2024)

### **Quality education**

This refers to the environment which makes it easy for students to participate actively in the process of learning. It constitutes all the modalities that are required during learning. The modalities recognises the learner's previous knowledge, interests, social and cultural practices, traits and talents and the infrastructure that is required for learning (Piggozi, 2009). Moreover, it realises the uniqueness of the learner. It is further described as an education that is non discriminative which ensures that all learners are accorded the opportunity to learn and ensues that learning is inclusive (Piggozi, 2009). In congruent with the above sentiments, Jamoliddinovich (2022) added that, Quality education is an inclusion of all the aspects of education such as financial, societal, intellectual and cultural. Additionally, Vaccari & Gardinier (2019) described quality education as an education that addresses complex situations that are brought by the rapid changing world which are faced by employers and policy makers in planning for the forthcoming generation. To sum up, quality education can be described as an education that is inclusive and equitable which encourages equal opportunities for all. Moreover, it can be described as an education that offers learners with relevant life long skills.

## **Quality Technical and Vocational Education**

The significance of a quality technical and vocational education cannot be overemphasised in the development of the socio economic and political growth of a Nation (Igberaharha, 2021). Globally countries advocate for a relevant technical and vocational education which can improve the employability of its youth. Afeti (2010) affirmed that globally technical vocation is realised as a tool that can drive the economies of the nations. With the above sentiments it is important for a quality technical vocational education to be achieved. There is a need for the technical and vocational sector to be well resourced with regard to both physical and human resources. Chakroun (2019) postulated that, the results of education regarding quality is comparable to the quality of its implementers. He further alluded that if a country need to produce a quality education it is important to engage implementers who are competent. In order to improve the quality of Botswana's technical and vocational education there is a need to engage lecturers during curriculum development furthermore.

### **2.4: Curriculum Development.**

The term curriculum originates from the Latin word which meant "running" or race course" As events unfolded, the meaning transformed to course of study, to be specific it referred to a programme offered in the institutions of learning (Kern, 2009). Curriculum in technical and vocational education vary in magnitude and range incorporating topics covered in the first year of study to the final year. Curriculum development is defined as a process, which involves how the learning, teaching, and assessment should be done. It involves collecting ideas, collating ideas, and reviewing. It focuses on what has to be covered (content) and areas associated with it additionally It incorporates macro or general based tasks that covers a broad variety of programmes, courses and learner's previous experiences (Dopson & Tas, 2004). To add more, Ramparsad (2001) defined curriculum development as "... an umbrella and continuous process in which structure and systematic planning methods figure strongly from

design to evaluation”. To sum up, curriculum development is a process producing and creating ways of how prescribed teaching and learning should be carried out.

#### ***2.4.1. Classifications of Curriculum Development Models.***

##### **a. The product and process models**

These models deal more with plans, learning outcomes or impacts. The product model put more emphasis on the methodologies, means and actions (Neary, 2003; O'Neill, 2010) in (Lim, 2022).in addition to the above, the pioneers of the product model mainly concentrated on the outlined learning outcomes, used structured steps and the developed curricular and were guided by outlined objectives. The process model diverted from the prescribed learning outcome and shifted the attention to teaching to learning. In conclusion, the focus of the model is on the means instead of the end.

##### **b. Rationale and interactive models**

To complement the above mentioned models, there was an invention of the rationale objective model, which emphasised that, during curriculum development process, the developers have to follow the prescribed route of defined goals, contents, methods and evaluation. This model produced a curriculum, which was mostly teacher centered and the learners were just passive and it does not consider the dynamic changes of the environment (Taba, 1962). On a different note, Print (1989) asserted that, curriculum development should not be fixed; it should be dynamic and interactive as the world is dynamic. Stagnant curriculum will not match the technologically rapid changing world.it should not be prescriptive instead it should follow the three steps of the platform phase, deliberation phase and the design phase. In addition to the three phases, for a curriculum to be considered to be of quality it should encompass the thoughts of the different values, theories and aims and objectives (Print, 1989; Brady, 1995)



### c. Subject centered and learner centered

Tanner & Tanner (1980) classified curriculum development in two areas, that is, the subject centered and student centered models. Subject centered focus more on the curriculum content while the learner centered concentrate on the relevance of the curriculum to the learners. Regarding the subject centered, the teacher is regarded as the fountain of knowledge and is in control of all the activities that are happening during teaching and learning. The teacher prescribes how teaching and learning should be conducted. On a different note, in a student-centered classroom, the learner is at the center of learning, while the teacher facilitates the learning process. There is high interaction between the learners. Moreover, it encourages critical thinking and creativity among the learners. Learners construct meaning from their previous experiences that they see as useful and relate it to what is being taught (Tanner & Tanner, 1980). In addition, Killen (2000) supported the above sentiments when she said that, learners should play a pivotal role in the process of learning. This concept resonates well with the constructivist theory of learning which asserts that during learning, student should construct meaning (Hein, 1991).

In summary, curriculum development is the systematic process of designing, implementing, and evaluating curricula to ensure they meet the educational goals and needs of learners. This process involves researching and analysing educational requirements, engaging stakeholders (such as educators, industry experts, and community members), and continually refining the curriculum based on feedback and changing societal demands. The aim of curriculum development is to create a coherent and relevant educational experience that enhances student learning and prepares them for future challenges (Palenkahu et al, 2024).

#### ***2.4.2. The Constructivist Theory.***

The exploration of quality curriculum development in Botswana's technical and vocational education will be drawn from the constructivist theories of learning in particular,

the theories of cognitive and discovery learning. These theories emphasize learning in the context of deriving meaning from the students' prior knowledge and put it in to practice (Jin, Hwang, & Kim, 2020).

Many theorists and educationists are allied with constructivism theory. Among the prominent ones are Piaget (1970), Blumer (1969), Kuhn (1996), Von Glasersfeld (1989) and Vygotsky (1978). Piaget is regarded as the father of constructivism. His interests were on how organisms adapt to their surroundings and how their previous experiences add to the way they behave. He posited that knowledge is not a portrait of reality (Piaget, 1964) in (Vrasidas, 2000).

The constructivist theory is viewed as a combination of numerous theories put together. It is the integration of both socialists and intellectual ideals (Amineh & Asl, 2015). Furthermore, Caffarella & Merriam (1999) in Amineh & ASL (2015) added that, people create meaning through learning and that is how they form their experiences. The use of the constructivist theory in curriculum development offers an opportunity to the lecturers to deduce the learner's previous knowledge and how they can apply that knowledge to what is being taught. The constructivist learning theories emphasises that the learners prior knowledge should be considered and be put in to practice (Cano-Fullido, 2015). To ensure that curriculum developed is of quality, the programme developers should take in to consideration that, students are accorded a chance to relate the new information to what they already know (Bada & Olusegun, 2015). The constructivist theorists posit that, teaching and learning should be teacher centered, postulating that the learner has to discover facts and meaning by themselves while the teacher acts as the facilitator and provider of resources (Clark, 2018). The Constructivist approach is valuable in curriculum development because it encourages the instructive experiences and augments the attainment of knowledge, skills and attitudes, which learners are going to use in their professional endeavors (Vades & Reed, 2020).

The theory hypothesize that learning is a dynamic and productive process. The information acquired by the students is created during their learning journey. To add more, it posits that knowledge is constructed according people's own understanding of reality, acknowledging that, the new information the learners learn during teaching will be related to what they had learnt in the past and mental depiction are idiosyncratic (Burhanuddin, Ahmad, Said, & Asimiran, 2021). As alluded earlier, constructivism was founded upon three theorists of psychology namely, Jean Piaget, Levy Vygotsky and John Dewey (Brau, 2020). Their contributions are as follows:

a. Piaget's perspective of constructivism theory.

Piaget is the pioneer of constructivism. He indicated that, people construct knowledge during the interaction of what they have experienced and their philosophies. His philosophy of constructivism is based on the idea that, the person is the epicenter of creating knowledge and the process of acquiring it. Piaget focused more on the cognitive aspect of acquiring knowledge (Gao, 2021). Most of the time during his work he worked with children and in his work he concluded that children are not cognitively lesser to adults. He affirmed that children mature differently and further developed a theory dealing with the developmental stages (Burhanuddin, Ahmad, Said, & Asimiran, 2021).

Regarding teaching and learning, Piaget is of the idea that during curriculum development, curriculum should be constructed such that activities and assessments differ according to the individual capabilities rather than having a one size fits all type of assessment. It emphasis that teacher's role is to facilitate the class room activities rather than being the teacher being the fountain of knowledge. Moreover, the teacher should provide different experiences in which learners can explore and make meaning from. In addition, Piaget's theory encourages activities in which learners with different cognitive levels work together so that they motivate each other. Furthermore he encouraged the use of concrete objects, categorized

and consolidated to enhance assimilation of the new information with the preceding knowledge (Lefa, 2014; Piaget, 1983).

b. Levy Vygotsky

Vygotsky's contributions to constructivism focused on the social side of knowledge acquirement. He hypothesized that, individuals learn better during their interaction with other people (Burhanuddin, Ahmad, Said, & Asimiran, 2021; Brau, 2020). He further said when student work together, they construct an atmosphere of collective meanings with their counterparts (Gao, 2021). By doing so, the learner acquires interaction skills which would make him or her to be socially acknowledged. Gao (2021) emphasised that, culture plays a pivotal role in the development of the cognitive of an individual. He upholds the idea that, the ability to develop cognitively is inborn. He said that, children are born with skills such as memorizing, and it is enhanced as they interact with others and their surroundings. Vygotsky believed that for children to acquire knowledge more efficiently, they need an instructor who is more knowledgeable, who uses a variety of teaching methods, offers support and augments the learning process (Brau, 2020). This emphasises the critical need of continuously developing lecturers so that they can effectively deliver and acquire new skills that are relevant and needed in the programme.

Concerning curriculum development, the theory suggest that, learning outcomes should be developed such that they include the activities that engage learners. Additionally it encourages proximal learning, which suggest that, educational goals should focus on identifying the capabilities that are evolving and make assumptions regarding what the learner can do on their own in the future (Daneshfar & Moharami, 2018). In addition, assessment should be dynamic in order to cater for the divergent abilities of the learners, doing so will assist the facilitator to determine the student's capabilities (Jaramillo, 1996; Newman, 2018). In conclusion the theory acknowledges the uniqueness of the learner.

### c. John Dewey

Dewey's perspective of constructivism is an amalgamation of Piaget's cognitive theory and Vygotsky's theory of social learning. Similar to Vygotsky and Piaget's theories he believed that the learning environment should be conducive in order for learning to take place (Williams, 2017). His philosophy was based on the notion that, education is a key factor in social and moral advancement. It has influenced the theories such as constructivism, learner centered and experiential theories which are different from the traditional classroom. His theory posit that, class room learning should use concrete objects, allow learner participation when performing activities, and promoted the use of flexible teaching methods (Williams, 2017). The theory further advocated for learner centered methods which place the learner at the center of learning. Furthermore, he said the use of learner centered methods allow for interaction among the learners, and agreed that, as the learners interact, they acquire problem solving skills together, construct their own knowledge and individual meaning as compared to the teacher centered method where the activities are directed by the teacher (Thompson, 2010).

Learners are engaged and their problem solving skills are enhanced. The curriculum is developed such that, it encourages hands on activities, during lesson planning the students interest are taken into consideration, there is emphasis on integration of project learning in the subjects curricular. Moreover, the curriculum developed is holistic as it encompasses the cognitive, social, emotional, physical, and spiritual growth of the learner and thus produces a well-rounded learner who will fit well in the society (Reese, 2011).

### d. Application of constructivism

In a study on the effectiveness of constructivism, learning models were based against student's mathematical creative thinking abilities in Indonesia, A Meta-Analysis Study by Budiharso & Tarman (2020) the study indicated the following results;

“Based on the random-effects model the combined effect size in this study was 0.884 (95% confidence interval, lower limit 0.677, and upper limit 1.091). The size of the effect is accepted as a high effect. This strong effect size indicates that using constructivism-based learning models in mathematical classrooms may be quite effective”

Botswana’s education system is moving away from the traditional teacher centered learning where the teacher was the fountain of knowledge in to an outcome based education. In the outcome based education, the instructor is required to translate the theory into practical action when planning for the lessons and teaching and assessment (Killen, 2000) Outcome based education empowers students and ensures that the learners acquire skills. In an outcome-based education, learner participation is highly considered (Japee & Oza, 2021). This resonates well with the constructivism theories of learning which state that for effective delivery of the curriculum the teacher should be effective and well equipped with the necessary skills required in the subject area they are to deliver.

The literature has shown that, the current education requires learners to participate actively in their learning. For active involvement of learners to be realized, there is a need for the use of theories, which allow for learner engagement during learning. The inception of the constructivist theory of learning and its application has been discussed. The motivation behind this study is that all the stakeholders should be consulted during curriculum development. The concepts to be discussed in the study are as follows:

- a. Botswana Technical education system
- b. Importance of an aligned curriculum system
- c. lecturer involvement in curriculum development
- d. The curriculum development framework
- e. Factors considered for the development of a quality technical vocational education curriculum

f. Curriculum implementation and evaluation.

## **2.5. The Technical Vocational Education System in Botswana.**

The main purpose of the sector of technical and vocational education is either to train for employment and job creation (Mupimpila & Narayana, 2009). Therefore it is key for the technical and vocational education curriculum developers to produce a quality curriculum that can equip the learners with the required skills. It is evident that the Botswana government's employment opportunities are shrinking and above all the country has a minimal industry base. As such, it is very pertinent that, technical and vocational sector curriculum should instill entrepreneurial and business management skills needed for self-employment. Curriculum alignment from one level to the other is very crucial during development as it allows for easier transition among levels (Ryan, Henderson, Ryan, & Kennedy, 2024).

To ensure that the curriculum developed is of high quality, its products should be globally competitive (Mupimpila & Narayana, 2009). With this in mind, it is apparent to have a snapshot of technical and vocational education of a country that had influenced the Botswana technical and vocational sector. The country under discussion is Germany. Botswana technical and vocational education system is a product of German's vocational education system. Even at the moment, Germany still plays a pivotal role in the technical and vocational sector of Botswana. Among other roles a German Agency for International Cooperation, still assist the technical vocational sector in training officers how to develop curriculum (Mmolai, 2020). This review does not rule out the fact that Germany is highly developed country as compared to Botswana. The focus here is to find out whether the Botswana technical and vocational curricular is still influenced by the German vocational education curricular or she had contextualized her curriculum to suit her needs. To do so the researcher had found it fit to discuss the technical and vocational education curriculum development process of Germany.

### ***2.5.1. Germany's Technical Education System.***

The vocational education curriculum took a major shift in 1997 when policy makers introduced a curriculum known as 'Learning fields (Bauer & Przygodda, 2003). The curriculum focused on competence based and job-related fields, which are in line with global trends. With these curricula in place, Germany would produce globally competitive human resource. The curriculum developed is related to the world of work and the business community (Bauer & Przygodda, 2003). It was described in terms of the competences rather than the disciplines. The focus of the new programmes was to increase the efficiency and quality of learning.

The programme was characterized by the following

- i. Promotion of creativity and innovation in different regions by using similar themes to encourage transfer of skills and increasing of best practice.
- ii. To deal with a variety of learning processes such as curriculum development, competences identification, and infrastructure development in the vocational training institutions.
- iii. Shifting from the traditional discipline focused curricular, teaching and learning to work process related to a competency based curriculum and crafting of learning processes (Bauer & Przygodda, 2003)

The learning fields curriculum framework

The main purpose of the learning fields was to simultaneously link the curricular and the process of learning with the industry (Bauer & Przygodda, 2003; Röhner, 2013). The curriculum framework focused on four areas during development. These are:

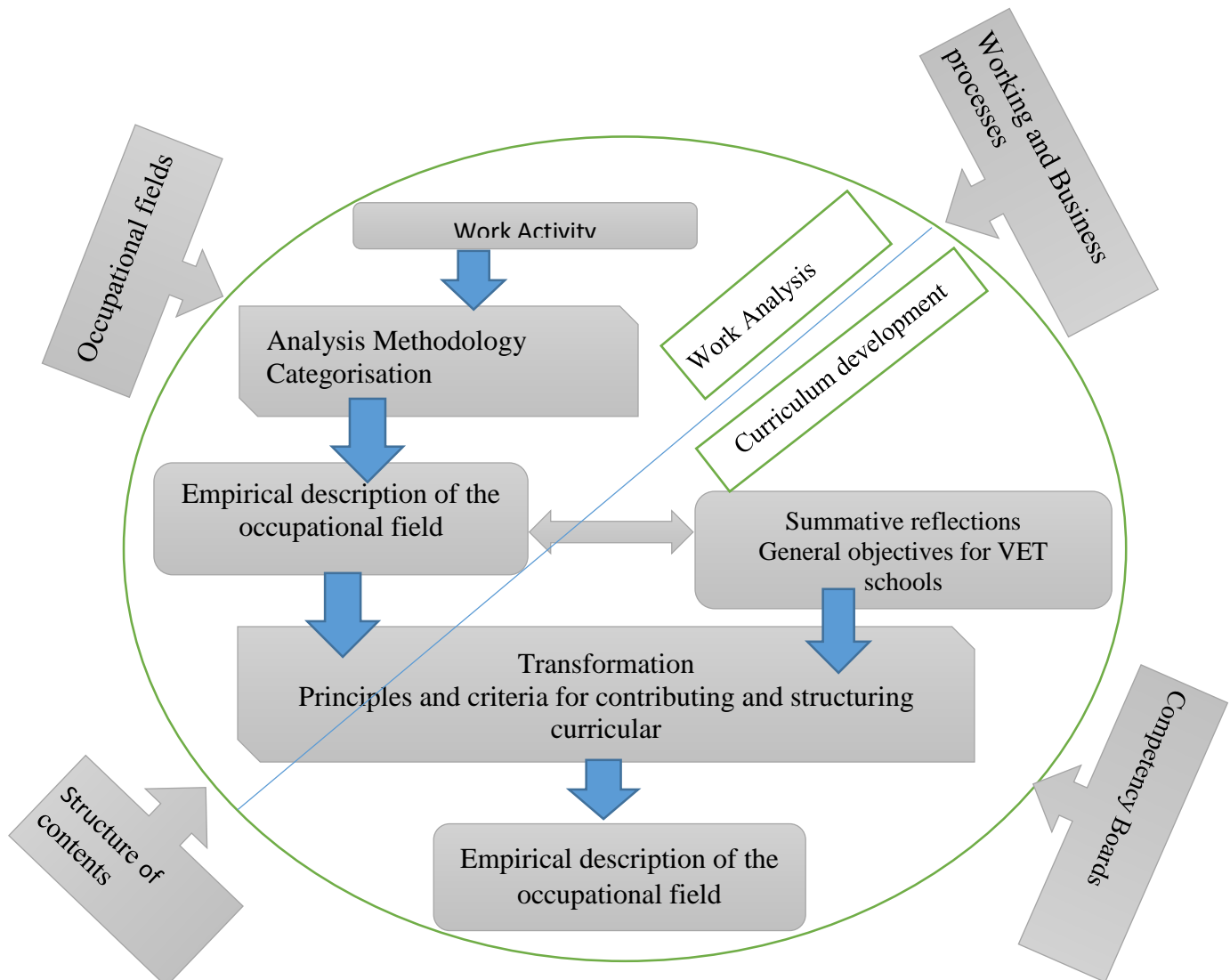
- i. The curriculum should be informed by the occupational fields.
- ii. Relevance of the learning fields to work and business processes.
- iii. The curriculum should be competency based.



- iv. The curriculum should be well structured and logical (Bauer & Przygodda, 2003; Röhner, 2013).

**Figure 2**

*Reference points for the learning fields and their implications in the manual*



In order to implement the reference points, pilot projects were carried out and they will be discussed below

### **SELUBA/ NELE pilot project**

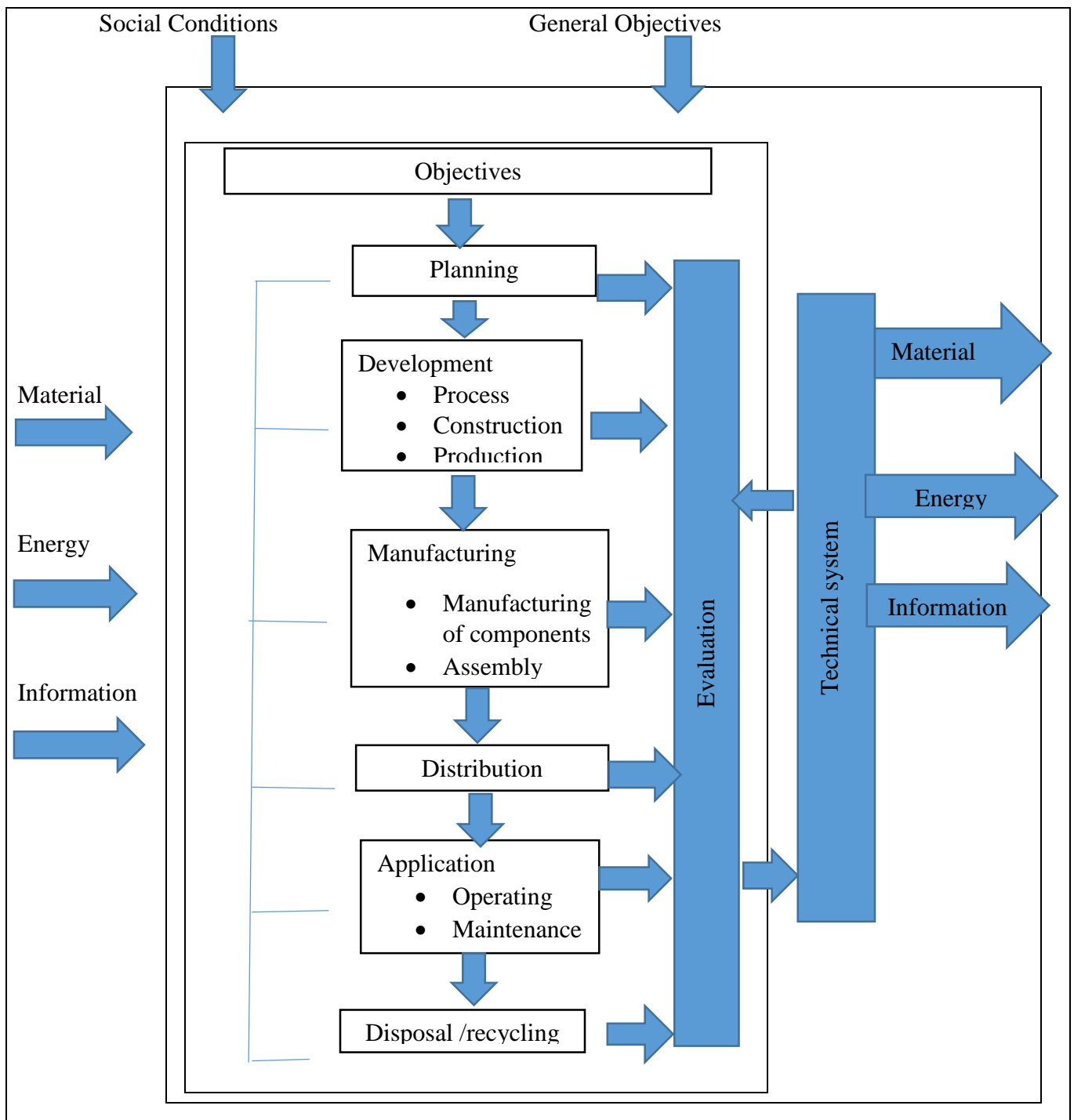
A theoretical pragmatic approach manual was co- developed for the construction of the learning fields in technical vocational fields (Bauer & Przygodda, 2003).

**Figure 3***Eight curricular steps for constructing learning fields and learning situations*

Step	Task	Reference System
1	Analyzing the relationship between the occupation and the work process	Occupational fields
2.	Analyzing the circumstances of VET in the occupation	
3.	Identifying the occupational fields	
4	Describing the occupational fields	
5	Selecting appropriate fields	
6.	Transforming the selected occupational fields in to an arrangement of learning arenas ( <i>Lernfeld</i> )	Learning curricula
7	Describing the learning arenas	
8	Designing learning situations by concretization of the learning arenas and orientation on the occupational fields	Learning situation

This manual firstly analyses how the vocational occupation relates with the work processes in vocational education and training (Fischer & Waldemar, 2007). The occupational fields are identified and defined on the analysis found and validated. After validation, learning fields are derived and defined (Bauer & Przygodda, 2003). Lastly, development of the learning situations form the learning fields replicating the occupational fields. In this context, occupational fields are a multifaceted tasks that have noteworthy benefits for the profession, self and the community at large. The core mandate of vocational education and training is to produce graduates who will be able to cope in the profession that they trained for. The criterions for choosing the learning fields are taken from the profession and their importance to the current and future demands. Data gathering for this structuring of the job processes is carried out through the sociotechnical action system, which is depicted below (Fischer & Waldemar, 2007).

**Figure 4**  
*The sociotechnical action system*



The sociotechnical action shows the human beings cognitive thinking in the technical professional fields. The NELE/ SELUBA pilot project assumes that the occupational fields and job processes should be identifiable in the system (Fischer & Waldemar, 2007).

### BS 2000 pilot project

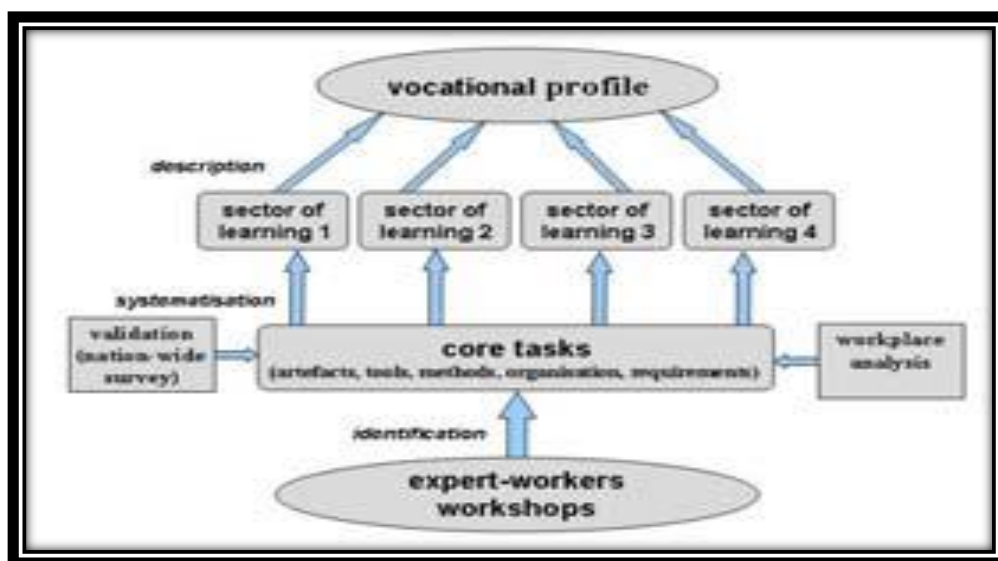
In this pilot project, the eight steps, which were in the NELE/SELUBA pilot, project were consolidated and reduced to four. Firstly, the present curricular was analysed and the occupations were profiled (Fischer & Waldemar, 2007). A document analysis was used to derive the job tasks and applicability in different areas. Experts in different fields were used to verify major work tasks from the different learning fields. This project concluded that the learning fields were based more on discipline structure (Bauer & Przygodda, 2003).

### GAB pilot project

The assumption of this project is that, every occupation may possibly be pragmatically defined by a definite measure of central tasks (Bauer & Przygodda, 2003). Central tasks define an occupation in terms of its connection between diverse aspects of the job and tasks that are both representative of the occupation and give its holistic scenario. Core tasks can be defined as singular skill of work or as a holistic that incorporate the occupation as a whole (Bauer & Przygodda, 2003).

**Figure 5**

*The concept of identifying core tasks and describing the occupational profile*



The above figure depicts the concept of identifying core tasks and describing the occupational profile in the GAB pilot project.

## **2.6. The African Context.**

### ***2.6.1. History of Technical Vocational Education in Africa.***

Vocational education and training in Africa before independence had been largely carried out in communities or concerned with requirement of the colonial states. After independence three major changes were observed. Which were shown by a greater expansion of the conventions of transformation, basic needs and tolerant of change. These three came in to place during transition amid colonialism and independence towards the 1950s and 1960s (Afeti, 2018). The first phase which dealt with this was shown by the wider expansion of the conventions of transformation. In this phase, Africa began to realize the importance of education and aspired to widen its education systems and concentrated on developing their countries through industrialization (Afeti, 2018). Policy makers realized that for industrialization to be achieved there is a need for a localized and highly competent workforce in order to reduce its dependency on the expatriates.

With that in mind, countries began to invest in vocational education and training so that they can achieve their vision of industrialization (Afeti, 2018). The second phase of planning for vocational education reflected a wider enquiry on transformation explanations regarding basic needs agenda (McGrath, et al., 2020). This influenced the designing of interventions needed to offer relevant skills for the rural and urban informal sector (McGrath, et al., 2020). Foster (1965) in McGrath (2020) argue that development planning does not require vocational education instead it requires general education. Nevertheless, the policies that valued vocational education and training were not reversed until the World Bank study which prioritized primary education came in to place (McGrath, et al., 2020). However, the African governments continued to invest in vocational education and training. This culminated the third

phase in which the World Bank provided an account for the public vocational education and training. Structures were formed which enabled the vocational education and training autonomy at the local levels, national levels and governing boards.

To further discuss the evolution of technical vocational education in Africa, the following countries have been chosen so as to compare their technical and vocational system with that of the country under study (Botswana). The countries were chosen because of their colonial background. Nigeria, Ghana, South Africa and Zimbabwe.

### ***2.6.2. Technical Education in Nigeria***

Nigeria is a largely populated country in the Sub Saharan Africa with a population estimated at around 197 million people which takes about 47% of Western Africa population. Its youth population is the largest in the world. With the highest needs of the labour market, the country needs skilled technical and vocational education graduates who can close that gap (Okolie, et al., 2020). The Nigerian technical and vocational education and training policy's main focus is on enhancing the growth of marketable skills and perceptions towards work. Technical and vocational education is offered in institutions of higher learning, the programmes are accredited and regulated by the National Board for technical education. Programmes regulated are from the Polytechnics and Technical Colleges of education. The programmes in the universities are regulated by the National Universities Commission (Okolie, et al., 2020). It adopted the UNESCO's technical vocational definition as "education, training, and skills development relating to a wide range of occupational fields, production, services and livelihoods (which includes) work based learning and continuing training and professional development which may lead to qualifications". Furthermore, Uwaifo (2009) added that, "technical education is the training of technically oriented personnel who are to be the initiators, facilitators and implementers of technological development of a nation. Technical and vocational education can be either formal or informal that is it can be provided through

schooling and lead to certification or it can be through day-to-day undertakings associated to work, household and leisure.

The objectives of technical and vocational education in Nigeria as outlined by the Federal Republic of Nigeria by Ololube & Ubogu (2008) in (Dumbiri & Nwadiani, 2020) are as follows:

- a. To provide skilled man power especially in the areas of technology, science,
- b. To provide business skills predominantly at national craft certificate and advanced levels
- c. Provision of trained manpower in the areas of applied science, technology
- d. To equip learners with agricultural, economic and commercial skills
- e. To train the individuals with entrepreneurial skills (Dumbiri & Nwadiani, 2020).

#### Economic development

The current global changes in technology and science cannot be reversed as such there is a great need of professionals who are skilled so as to meet these demands. Maclean (2006) affirmed that 80% of the professions need technical and vocational skills. The above assertions emphasises the crucial role of technical and vocational education in driving the economy of a nation. This suggests that, the curriculum developed should ensure that it meets all the challenges that are required by these inevitable dynamic technological changes. Technical education therefore, is critical to the country in order for it to uphold its competitiveness. In Nigeria technical vocational education has been viewed as a driving force that can help to reduce declining economy and the increasing youth unemployment rate (Akanbi, 2017).

#### Challenges faced by the technical vocational sector in Nigeria.

Technical and vocational education is currently facing challenges regarding the following as alluded by (Okoye & Arimonu, 2016; Yusuff & Soyemi, 2012);

i. Funding:

The universities are owned by the Federal government, the state government and private persons. Funding from government is limited and does not cover all the needs of the technical vocational sector. (Okoye & Arimonu, 2016)

ii. Facilities:

There is inadequate or none relevant facilities such as the laboratories and workshops for teaching and learning. Only 40% of higher learning institutions have laboratories while 60% does not have workshops and laboratories (Okoye & Arimonu, 2016) furthermore they asserted that, this may be the reason the lecturers resorted to not doing practical work during delivery. In places where there are resources they are not adequate or obsolete as most of the resources in the laboratories and workshops are those that were furnished when the programmes were started. The lack of adequate resources has led to the diminishing of quality teaching and production of incompetent technical and vocational graduates (Yusuff & Soyemi, 2012).

iii. Brain drain:

This is when the competent and qualified technical vocational educational lecturers who are required for the betterment of the sector join other professions in search of greener pastures due to the conditions of service (Bassi, 2004). For example, academicians joining the industry, lecturers moving to other countries, statistics has shown that 45% of the professionals and technicians have left the country (Bassi, 2004) in (Yusuff & Soyemi, 2012). Lecturers turnover from Nigeria to the Western countries was more than 10 000 between 1997 and 2007 furthermore, annually it is estimated that 500 lecturers move to Europe (Okoye & Arimonu, 2016; Yusuff & Soyemi, 2012).



iv. Staff training and retention:

Continuous training of staff is very crucial. Staff development can be done either locally or outside the country. Okoye & Arimonu (2016) affirmed training outside the country is expensive due to foreign exchange even though it is expensive it is conducive because of the highly equipped workshops and laboratories. Local training though cheaper it is strenuous due to lack of adequate resources (Okoye & Arimonu, 2016; Yusuff & Soyemi, 2011). Furthermore, products of local training as compared to those that trained outside the country are less competent. Those that get the opportunity to go for training outside the country most of the time do not return to the country because of poor working conditions and unattractive remunerations. Okoye & Arimonu (2016) stated that, "the salary and service benefits paid to technical education lecturers in Nigeria is the lowest in the whole world". Majority of the technical education lecturers migrate to Botswana and South Africa as they pay lucrative salaries as compared to Nigeria. This problem defeats the objective of the country of producing competent technical and vocational graduates with skills that can drive the economy. Regarding staffing and qualifications, most of the departments in the technical and vocational education subjects do not hold Ph.Ds. as compared to the subjects that are not technical because it is not attractive (Okoye & Arimonu, 2016; Yusuff & Soyemi, 2012).

v. Technical and Vocational education curriculum.

The technical education curriculum is more of theory than practical, the curriculum has been organized such that the theory is 67% and the practical is 33%. This ratio shows that there is mass production of graduates that are not be practically skilled as they spend most of the time engaged in theory (Okoye & Arimonu, 2016; Yusuff & Soyemi, 2012). As already said that technical and vocational education is a practically oriented education, there is a need for the curriculum to be more practical than theory. Okoye & Arimonu (2012) advocated for an overhaul of the technical education curriculum. On a different note he said that revamping of

the curriculum may not produce the much needed graduates who are technologically and scientifically knowledgeable if other challenges such as adequate infrastructure and funds are not taken in to consideration. Olunloyo (2002) proclaimed that,...” one of the issues confronting the design of an appropriate curriculum for technical education is preparing students to shift from the fordist to Information Communication and Technology ( ICT) paradigm in technology practice”.

The challenges of the current curriculum are as follows (Ojimba, 2012);

- a) The curriculum model is foreign,
  - b) Shortage of the text books, available text books are not relevant to the local issues
  - c) The curriculum is too theoretical
  - d) The curriculum does not produce well-rounded graduates who are fully equipped with all the necessary skills needed by the industry such as entrepreneurial, social interaction skills and skills for managing a business.
  - e) The teaching and learning approaches are teacher centered where the teacher takes control of all the classroom activities. (Ojimba, 2012)
- vi. Stakeholder involvement in curriculum development

The engagement of the stakeholders in the development of the curriculum does not only benefit the industry it is also beneficial in the development of the nation as a whole (Kagara, Aminu, Udu, & Musa, 2023). It increases the economic competency of the nation internationally, as such, it is very important to involve all the concerned stakeholders when planning and developing the curriculum. Industries and employers should collaborate with the technical and vocational education and training during curriculum development to guarantee that there is no mismatch between the industry required skills and what is offered in technical and vocational education (Kagara, Aminu, Udu, & Musa, 2023). In a study carried out in the Niger state, to investigate whether there is collaboration with the industry for curriculum

enhancement, the study outcomes confirmed that, majority of the departments under studied do not conduct industry needs assessment. Most departments (98%) have not partnered with any industry for curriculum improvement. Similarly, there is no department which had partnered with any industry for work placement (Kagara, Aminu, Udu, & Musa, 2023).

### ***2.6.3. Technical and Vocational Education in Ghana.***

Ghana's technical and vocational education system like its colonial counterparts was influenced by the Europeans. The technical and vocational sector was formed mainly to provide service to the formal and informal sector with the vocational skills of crafts such as blacksmithing stonework and carpentry (Kissi, Adesi, Acheampong, & Abu, 2024). The technical and vocational sector evolved over the years. New governing structures were put in place after independence. Technical and vocational education sector operates under the Ministry of Education which is headed by the Minister of Education. The technical vocational and education operates under the sector of tertiary. Its delivery is governed by the following acts; the education act of 1961, The National Vocational Training Act, 1970 which emphasised practical based training and provision of the formation of the National Vocational training Institute which was to be manned by the Ministry of Employment and Social Welfare with the responsibilities of establishing internship, in house training, and developing training programmes and standards (Donani, Saan, Kuuyine, & Adams, 2021).

There are three levels at which technical and vocational education is offered in Ghana. It is offered at Basic Education level starting at Junior secondary school level, the second level include the Secondary technical institutions, and other technical institutions. The third level include the universities and the Polytechnics (Baiden, 1996). The purpose of offering technical and vocational education at lower levels is mainly to provide the consumers with the skills for self –employment and provision of technical manpower. The goals of technical education in Ghana included the following (Baiden, 1996);

- a. To subject the students to technical education at an earlier stage so that they can be familiar with a range of practical activities in the vocational sector.
- b. To provide the technical and vocational education learners with skills for employment, business, and entrepreneurship.
- c. To supply the manpower in the fields of science, technology and commerce that is relevant to the needs of the industry.
- d. To supply manpower for economic development of the nation in the field of agriculture (Baiden, 1996).

#### Economic development

Ghana like any other country has viewed technical and vocational education as a vehicle of economic development. Technical and vocational education notably add to the human capital development of the nation (Mensah, 2023). It can significantly reduce the unemployment rate. With the desire to improve its economic standing, the government of Ghana revamped its technical and vocational education after independence and put more emphasis on the technical education curriculum that is relevant to the industry needs (Kissi, Adesi, Acheampong, & Abu, 2024). The government acknowledged the crucial role that is played by the technical and vocational sector in the economic growth of the country. It realigned the technical and vocational education and 'training goals to Ghana's vision 2020. The goals were to enhance the relevance of education by equipping the people with the expertise and knowledge that will enhance their socio economic status and increase their employability particularly to the youth that are not academically gifted. Moreover to strengthen the financial power as it will increase the competences of the human resource (Gyau, Osei, & Gyau, 2024).

### Challenges faced by the technical vocational sector in Ghana.

Ghana's challenges in technical and vocational do not differ much with those of Nigeria. The sector decries of less funding, poor resources and infrastructure. Inadequate resources has led to teaching being more theoretical than practical the curricular is said to be 70% theory and 30% practical in the polytechnics (Bentum-Micah, Cai, & Kyei-Nuamah, 2024). Moreover, shortage of technical lecturers, lack of quality training, complexity in progression and the attitude of the public towards technical and vocational as compared to universities has led to low enrolments in the technical and vocational programmes (Kissi, Adesi, Acheampong, & Abu, 2024). The enrolment is said to be 13.2% as compared to other countries such as Germany with 53.2%, Finland 55.1%, Burkina Faso 20.9% and Cameroon 22.4% (Kissi, Adesi, Acheampong, & Abu, 2024). Other factors that had contributed to the low enrolments rate are that, the graduates produced are not market ready as they are considered to be less competent. Furthermore, there is limited stakeholder collaboration with the institutions that offer technical and vocational and education (Kissi, Adesi, Acheampong, & Abu, 2024). Stakeholder's involvement in curriculum development.

Ghana's technical and vocational education like other countries trains learners so that they can be absorbed in the industry as such, it is crucial for the sector to collaborate with the stakeholders during the process of curriculum development. Akomaning, Voogt & Piterers (2011) declared that, "The curriculum for the polytechnics in Ghana is institutional based and supply driven and is not responsive to the needs of the industry". These assertions indicate that collaboration between the institutions is low or nonexistence. On a different note one can assert that the lecturers might be fully engaged during curriculum development as it is said that the curriculum is institutional based.

#### ***2.6.4. Technical and Vocational Education in Zimbabwe.***

Zimbabwe's education system was influenced by its colonial master the United Kingdom. Like other colonies the education which was offered was to serve the interests of the coloniser. People were equipped with skills which were required by the British. They equipped them with skills which will enable them to work as laborers (Munetsi, 1996).

Zimbabwean education system is managed by the Ministry of Education Sports and Culture together with the Ministry of Tertiary and higher education. The Ministry of Education Sports and Culture takes care of the primary and secondary education (Mupinga, Burnett, & Redmann, 2005). The ministry deals with the technical and vocational education that is offered at secondary schools and the Ministry of Higher and Tertiary Education takes care of technical and vocational education and manpower planning and institutional development (Dube & Xie, 2018). The Manpower and Development Planning is accountable for planning for human resource, and development of the institutions especially the Polytechnics. Technical and vocational education is offered at the eight (8) Polytechnics, two (2) industrial training sectors, and three (3) government aided vocational centers. Additionally, the Ministry of Higher and Tertiary Education is accountable for traineeship (apprenticeship) curriculum and the Ministry of Youth Sports and Culture is accountable for skills development (Dube & Xie, 2018)

Education at primary and secondary is legally regulated by the Education Act No5/1987 which was amended in 1991 and 2004 (Dube & Xie, 2018) The Act stipulated educational principles and reorganised teacher education. The Manpower Planning and Development Act 28: 02 of 1984 was amended in 1996 and it controls the administration, processes and the upkeep of the institutions that offer technical and vocational education such as the universities, training schemes for teacher colleges and vocational training. Furthermore, the Act intensifies the development of human resource, traineeships, certification of the skilled workforce and

institutes training charges and the duties of the National Manpower Advisory Board (Dube & Xie, 2018).

Technical vocational training in Zimbabwe is carried out in two ways, which are the formal and informal training. The formal way of training is done at the secondary schools, polytechnics and universities. At secondary level, the learners are mandated to choose not less than two subjects in vocational subjects. This is done so as to enable them to choose the career path which suits their academic performance. At the end the student can opt to follow the academic or the technical and vocational route (Chinyamunzore, 1995). The formal system offers vocational training skills at the tertiary education in the colleges of education which offers teacher training, polytechnics, technical colleges and universities which may lead to an acquirement of a certificate, diploma and degrees (Mupinga, Burnett, & Redmann, 2005). The informal system is not organized like the formal structure. It offers rapid skilling programmes and focuses mostly on work related issues, and those who are financially constrained or those who have less chances of pursuing their formal training. This training offered by both the private and public institutions (Dube & Xie, 2018). Training can also be done on the job where organizations realize that the employee lack a skills in a particular area. The objectives of the technical and vocational education sector in Zimbabwe like any other nation is to develop its human resource and reduce the unemployment rate among the youth (Dube & Xie, 2018).

#### Economic development

The Zimbabwean government realised the significance of technical and vocational education in driving its economy. With that, in 1999 it established a commission of enquiry in education and training with a robust vocational section to curb unemployment (Mutambanengwe & Dambudzo, 2019). The government believed that, creation of employment will increase the socio economic status of the people and thus increase its global economic standing. The motive behind providing a robust technical and vocational education

in Zimbabwe was to ensure that the curriculum addresses industry needs, offer problem solving skills and programmes that address the dynamic changes of the 4<sup>th</sup> industrial revolution (Dube & Xie, 2018).

a. Challenges faced by the technical and vocational education in Zimbabwe

Technical and vocational education in Zimbabwe is faced with challenges which are more or less similar to other African countries discussed above. The sector is faced with the following regarding the implementation of technical and vocational education.

i. Inadequate resources

Due to the economic status of the nation the Ministry of Youth Sports and Culture is not able to equip the schools with the necessary resources that are required for the implementation of the programmes. The resources that are there are obsolete and are costly to repair (Munetsi, 1996).

ii. Quality of the facilitators.

The sector decries of unqualified personnel that lack required competencies. This is due to lack of continuous development training of the facilitators required to meet the changes brought by the dynamic technological changes. The sector still provide staff with knowledge that does not meet the standards of these changes (Munetsi, 1996).

iii. High staff movement

Due to high inflation which hit the country in 2008, the country lost a high number of employees which left the country to neighboring countries in search of attractive salaries. This move had detrimental effects in the vocational sector as most of the trained and skilled personnel left the country (Dube & Xie, 2018).

b. Stakeholder involvement in curriculum development.

It has been noted that curriculum in Zimbabwe is top down. The minister of the Ministry of Higher education dictates the curriculum that should be delivered in the institutions (Kaviya,



Nikisi, & Ngorora, 2022). The Minister of Higher and Tertiary Education, Innovation, Science and Technology affirmed that there is no linkage amid the education at higher levels and the country needs as such it is imperative to address the situation. The curriculum should be developed such that it addresses the Zimbabwe's vision of becoming a competitive, industrialized and modernized country by 2030". To ensure quality of curriculum, The Zimbabwe Council for Higher Education (ZIMCHE) Act (Chapter 25:27 of 2006), fully reviews the curriculum with subject experts (Ncube, 2020).

Curriculum development in universities is done by the university faculty staff in consultation with stakeholders in the industry, staff and the learners in the exchange programmes. Kaviya, Nikisi; Manuere & Ngorora (2022) affirmed that though the academic staff are involved in curriculum development their contribution is minimal. This minimal contribution has negative consequences concerning teacher motivation during the delivery of the curriculum. In their study investigating the significance of involving the lecturers in curriculum development in Zimbabwe, Kaviya, Nikisi; Manuere & Ngorora (2022) asserted that, facilitators confirmed that, they are not inspired to deliver a curricular which they did not take part in during the inception stage. This had negative impact during implementation. They believe that there is a positive correlation between the functions of the staff and the effectiveness of curriculum delivery (Kaviya, Nikisi, & Ngorora, 2022).

#### ***2.6.5. Technical and Vocational Education in South Africa.***

Similar to other countries globally South Africa decries of a large number of youth unemployment. As a country it needs to come up with strategies that can reduce the unemployment rate. Adams (2019) declared that, a strategy that can work for them to effectively do that is to strengthen its technical and vocational education. The system of a formal technical education dates way back to the time of the white minority rule pre-1994.

Technical and vocational education and training (TVET) will be discussed basing on both the apartheid government and the democratic government.

Pre -1994: (Apartheid South Africa)

Technical education in South Africa like other countries which had been discussed in this research has its focus on development of the skills for the betterment of the work force in the areas of Science and Technology. South Africa similar to her counterparts is faced with high youth unemployment rate and skills disparity (Graspa, 2017). The government affirmed that to address that, there is a need for transformation of the technical vocational sector (Graspa, 2017). One of the main objectives of the technical vocational education and training (TVET) was to skill the youth with the knowledge, attitudes that are required in the workplace. Technical vocational and education is offered in the TVET institutions officially addressed as Further Education and Training colleges. The institutions are manned under the Department of Higher Education and training (Graspa, 2017).

The sector was governed by the Apprenticeship Act (Act No. 26 of 1922) in the 1920s, which postulated that the main objective for the technical institutions was to deliver theoretical and vocational traineeship system. During the 20<sup>th</sup> century, TVET education was formalized to up skill those that are on the job with theoretical skills as they were already skilled with practical skills but lacking the theory part. Adams (2019) declared that in that era, the TVET segment was relevant to the industry. More skills were required as the industry base grow. A combination of theory and practice was in more demand as the companies required graduates who possessed both theory and practice. The curriculum is offered at the ratio of 60% practical and 40% theory (Adams, 2019). All the learners in the TVET colleges went for work placement where they were offered practical skills and knowledge. Industry-College partnerships was very strong. The industry offered the practical part of the curriculum as such there was no need for the colleges to have workshops. The colleges offered the theory part. This collaboration

guaranteed the achievement of technical colleges and reduced the financial strain on the government this initiative was done to segregate the black South African Gerber (2001) in. (Adams, 2019)

The socio economic strains of the 1980's birthed the Manpower Training Act (Act 56 of 1981) which its purpose was to allow the black South African entry in the technical colleges. Due to that a great number of the blacks entered the technical colleges. The large numbers led to the establishment of more technical colleges in the city areas. During this era there was three types of technical colleges; Kanyane (2016) confirmed that" i) state-aided technical colleges for whites, ii) the state technical training colleges, and iii) and the homeland manpower technical colleges for blacks to cater for the authorities and to protect the policies of separate development" The second and the third types were established to enroll the Blacks, Indians and the coloured learners (Adams, 2019) The curriculum offered at the colleges was geographically inclined. That is, it differed according to the location.

Post 1994 (Democratic South Arica)

Prior 1994 there were one hundred and fifty two technical colleges (152). This included the three types which were outlined above, which their administration differed based on the apartheid planning. The new government had a difficulty of transforming a TVET sector which racially segregated to a comprehensible sector which would address the demands of the 21<sup>st</sup> century (Africa, 2008). The great challenge was renaming and merging the colleges.

Skills and education acquirement was seen to be the tool to guarantee that the black South Africans who were sidelined and deprived entry to education and training are accorded entry in the colleges. Legal and regulatory documents and Acts were instituted to assure that technical training is coherent with the requirements of the nation: The statutes included the following:

- a. The South African Qualifications Authority (SAQA) Act of (Act 58 of 1995). This birthed the national Qualification Framework which was to offer a framework for education accomplishments addressing inclusivity, flexibility and advancement.
- b. The White Papers on Education and Training of 1999 and 2013, which its aim purpose was to promote programmes initiated by government which intended to ensure that the technical education and training is inclusive
- c. The Skills Development Act No 97 of 1998, substituted the Manpower Act of 1951 (Republic of South Africa 2008) (Africa, 2008). It focused on the growth of technical education and ensured that technical and vocational education is modernised.
- d. The Skills Development Levies Act of 1999 enforced the industries to fund the training of technical and vocational education through payment of a training levy

#### Economic Development

The technical and vocational education and training in South Africa has been viewed as a vehicle that can drive the economy and strengthen its global economic status. To achieve this the government envision to empower the youth with technical and vocational skills which are job oriented. The country had developed legislatures which will ensure effective implementation of this sector (Afeti, 2018). All these initiatives had been done to transform the TVET sector so that it produces complete human resource who can meet the changes in the science and technology sectors. A technologically competitive human resource will increase the socio economic status of the individual and atomically increase the global economic standing of the nation.

#### Challenges faced by the technical vocational sector in South Africa.

Though the country has tried to come up with the policies to transform the TVET sector, the sector still encounters some challenges as follows; (Terblanche, 2017)

- a. Obsolete training programmes which had not been reviewed and are no longer meeting the needs of the employer.
- b. Out dated infrastructure
- c. The misconception that technical and vocational education is for those who are academically challenged who could not manage to be admitted in to the universities
- d. The college industry relations is minimal and this led to production of the mismatch of the graduates produced with the needs of the industry.
- e. Lecturers have the experience but lack pedagogical skills
- f. Most of the TVET colleges do not have workshops they depend on the industry workshops (Terblanche, 2017).

#### Stakeholder involvement.

Stakeholder involvement in the delivery of curriculum in South Africa seems to be positive as it has been discussed that most of the practical part of the curriculum is carried out in the industries. Though the industries take part in the practical's and also offer the learners opportunities for work placement, it can be assumed that industries are minimally engaged during curriculum development as the industries still complain that the programmes do not address their needs (Adams, 2019). Technical colleges and university develop the curriculum under the monitoring systems of the South African Qualification Authority (SAQA).

#### Conclusion

Out of the four countries discussed above, it is prevalent that the three countries which were colonized by the British share similar background of what influenced the inception of vocational and education. It was noted that vocational education was incepted to serve the interests of the colonisers. Post colonialism the countries transformed their TVET sectors so that it came meet the needs of the citizens. Regarding the TVET as an economic driver, the

governments of the nations concur that, with a robust technical and vocational sector, their countries' global economic standing can be boosted. Furthermore, they opined that the sector will enhance the human resource competencies to tackle the ever-changing technological and science changes of the 21<sup>st</sup> Century. The countries share similar sentiments regarding the technical and vocational challenges such as, inadequate resources and infrastructure and lack of teaching personnel. Furthermore, they are all concerned with the minimal inclusion of the stakeholders in the running of technical education in the institutions. This minimal inclusion led to mismatch of the graduates to the industry needs and higher number of unemployed graduates. Implementation of technical and vocational in three countries of Nigeria, Ghana and Zimbabwe is theory based that is delivery is mostly teacher centered unlike in South Africa where the ratio for implementation is 60% practical and 40% theory.

## **2.7. The history of Botswana's Technical Vocational Education.**

### ***2.7.1. Botswana's Technical and Vocational Education and Training System Overview.***

The Technical and Vocational system in Botswana came into existence a few years before independence. This was because the country needed the Artisans and administrative staff who were required for the preparations of country's independence. Botswana Training Centre and the Special Commonwealth Assistance Programme were formed in 1962 in order to produce the labor required above. The latter operated under the Ministry of Labour (Atchoarena & Delluc, 2001).

### ***2.7.2. The Evolution of the Brigades system.***

Similar to other global countries, technical and vocational education (TVET) in Botswana's main purpose is to provide skills for employment. Vocational education started with the inception of Brigades movement. The main purpose was to have an education system where the curriculum mainly provided practical skills in construction and farming. Its aim was to overcome the challenges of the formal education. The Brigades started as a response to the

challenges, which were faced by the school leavers and equipped them with vocational skills, needed in their local areas. It offered programmes which skilled the benefactors with skills for employment and enhanced the development of the rural areas. To understand the evolution of Brigades in Botswana three phases will be discussed.

#### Phase 1

Patrick Van Rensburg who was a South African exile founded the first Brigade in 1963 after realizing that Botswana lacked bricklayers, carpenters, and other trades which the academic curricular did not produce. The first Brigade operated in the premises of Swaneng secondary school. In 1966 Botswana became independent and the following year the ownership of the Brigades was transferred to the Department of Community development. Three more Brigades were built around the country (Chilisa, 1978)

The importance of the brigades in Botswana.

This system played a major in the development of the country in terms of reducing dependency on neighboring countries for some imports and services. Some imports such as school uniforms started to be locally produced. The locals were skilled in jobs, which used to be done by the expatriates such as plumbing, tiling and auto mechanics. Even though it is playing a significant role in the economy of the country it has shifted away from its major purpose of developing the rural areas so that it can change the livelihoods of the community in terms of agriculture (Graaff, 2008).

Brigade curriculum.

The curriculum was 80 percent theoretical work and 20 percent practical work. The brigade financed its operational cost by the finances they got from production. This initiative worked well because in that era, the country was still very poor and it lacked skilled work force. The success of this initiative birthed many more brigades, which are seen around the country. Currently there are 40 brigades in total and 15 satellite brigades, which offers different

programmes. The curricular was based on empowering the youth who were academically challenged and could not make it to secondary school.

The curriculum included among others the subjects such as Mathematics, English and Development studies and Science. It also opened doors for the massive 88 percent of school leavers who could not be absorbed in secondary schools. As the country's demands for more skilled labour in some fields such as mining increased, more programmes were added to the curriculum for example, mechanics, iron smelters, smith, and glassmakers (Parsons, 1989).

Phase 2: 1971-1980.

The Brigades moved from the Department of Community Development to the Ministry of Education. A National Brigade Coordinating Committee was formed under the coordination of Van Rensburg, and he suggested that policies should be formulated to set up a National Rural Development Council, but the initiative was taken over by the advisors and planning officers and was financed by the British, American, Scandinavian and eventually West German aid.

Phase 3: 1980-1989.

Botswana's economy faced challenges in the mining sector due to the diamond oversupply in the global market and the diseases, which affected the cattle industry in 1980 to 1982. This made the government to reflect and re-evaluate the brigade system. On a similar note, project donors carried an evaluation of the running of the brigades' centers in Serowe, Molepolole and Shashe. The evaluation concluded that some brigades should decrease their activities due to the financial constraints. Government ceased sponsorship of some brigades from August 1980-June 1983. During this resting period, government reflected on how to revive brigades. Government resolved to take over the brigades and declared them the lower level of technical and vocational education, and regarded them as autonomous. Their curricular still maintained the education for production status (Ministry of Education, 1988).



Graduates employability.

The survey that was carried out in 1976 showed that, 83% of the graduates from the brigades were employed within a shorter period of time following their graduation as compared to those who went through formal education. More over 50% of them earned better salaries than those from the formal sector (Franzen & Marman, 1988)

## **2.8. The Current Situation in Botswana's TVET System.**

Currently the brigades are under the Ministry of Education and Skills Development manned by the Department of Skills Development. They offer programmes from trade test, National Craft Certificate and some certificate programmes in Business studies.

### ***2.8.1. Technical Vocational Policy and Legislation.***

The technical and vocational education national policy framework is supported by Vision 2016 (Presidential task team, 1997). Vision 2016 the importance of an education system that is relevant, accessible and of quality. It sets out the importance of equipping the people with the skills and knowledge to become self-reliant such that they reduce dependency on other countries in terms of provision of goods and services. It also highlights that, TVET graduates should be competitive and create jobs through creativity and innovation of new enterprises (Presidential Task team, 1997). The vision further advocates that all the citizens have the right to further their education after secondary school completion. That is they can enroll in technical and vocational education as a substitute for pure academics (Akoojee, 2005).

### ***2.8.2. The National Policy on Vocational Education and Training.***

The vision stated that, there is a need to recognize the abilities of Botswana's human resources and realize those who can be able to deal with the contemporary and upcoming needs of the individual, the economy and society through the provision of a national vocational education and training system.

The policy will be achieved by the following:

- a. Provision of linkage between the general education and vocational education in recognition of prior learning
- b. Stakeholder involvement during curriculum development, delivery, and implementation
- c. Provision of the needed resources
- d. Increase access and equity
- e. Provision of quality and relevant vocational training programme which enhances quality work ethics

The policy acknowledges that, the current situation is fragmented and it needs an integrated system, which will allow for better planning for this sector of education. This will be done through the following: The formation of an integrated National Vocational and Education and Training system, which will function at three levels.

Level 1.

This level has two arms, The Botswana Training Authority (BTA) which is responsible for advising the Ministry policy formulation and strategic planning and guide the development of vocational educational and training strategy. The other arm is the National Employment Manpower and Incomes Council, which its purpose was to advise government on the overall training strategy and work force development. The vocational education and training was assigned to the Ministry of Labour and Home affairs.

Level 2.

This level is responsible for the executive roles of coordination and implementation of the national policy on Vocational Education and training. This included, promoting training and liaising with training providers. This was the responsibility of the Botswana Training Authority.

Level 3.

This level was responsible for offering training. There was a variety of training providers. They included among others, public institutions, community and private institutions and on the job training centers. These training were to follow the recommendations of the guidelines stipulated in the two levels above.

### ***2.8.3. Links of the Policy with other Sectors of Education.***

#### **i. Formal education.**

There is no well-established structure, which links the vocational education sector with other sectors of education. Therefore; entry into the vocational education is not defined. The sector is yet to develop career path, which will enable easy transition from one level to another.

#### **ii. Non-formal education.**

Similar to formal education links with the non-formal education are yet to be developed in order to cater for those who lack some technological expertise in certain fields and to encourage the principle of lifelong learning.

### ***2.8.4. Curriculum Development in Brigades.***

According to the policy, curriculum development is informed by the Apprenticeship and Industrial Training Act of 1983 which came up with the structure of how the curriculum and standards for the trades could be developed. Even so, private vocational training colleges were not mandated to follow the said curricular. They have the liberty to develop their own curricular. This on its own posed a challenge to the country as some of the programs developed did not meet the needs of the country. Even so, the curriculum developed aimed at preparing the beneficiaries to be self-sufficient, productive and with skills that meet the needs of the nation. The following objectives should be covered when developing the curriculum:

- a. Smooth transition among levels
- b. Should boost modularized training

- c. Be conscious to technological changes and needs of the society
- d. Involve business community and stake holders
- e. Cater for both formal and non-formal
- f. Appreciate lifelong learning, pre- vocational for those who want to further their education
- g. Equip the learners with entrepreneurial skills
- h. There is need for identification of most required competencies.

#### ***2.8.5. Modes of Delivery for TVET.***

Diverse methods of delivery should be used to cater for both formal and non-formal education. This will include among others practical and theory both in the institutions and at industry. Delivery should be more of practical than theory.

### **2.9. Formation of Public Technical Colleges and Legislature in Botswana.**

The government opened its first technical college in the year 1987. Since then the technical vocational sector grew in both the public and private sector and they operated under the Ministry of Education and Skills Development and coordinated under the department of Technical and Vocational Education (DTVET) (Koobonye, 2020). Even though the technical colleges were opened, by then there were no legal policies which were developed for guidance on the operations of this education sector. There was a National Policy on Education, which acknowledged the significance of skills development, but was silent on how it should be operated. A commission was set in 1994, which came up with a Revised National Policy on Education 1994 (RNPE). This policy required that there should be a National policy on Vocational Education and Training (NPVET) operating in the Ministry of Education and Skills Development and the Ministry of Labour and Home Affairs. In 1997.

The commission for the development of the RNPE had realized many challenges regarding the implementation of technical and vocational education. These included the

insufficient funding, poor status (BQA, 2016). The formulation of the National Policy on Vocational Education increased the status of vocational and placed it at par with the academic education and its different programmes were unified in to a comprehensive system (UNESCO-UNEVOC, 2006).

The Vocational Training Act No 22 of 1998 established the Botswana Training Authority (BOTA) in the year 2000 under the accountability of the of the Ministry of Labour and Home affairs. The functions of BOTA were to ensure that the colleges are accredited, to monitor and register both private and public institutions. The sole purpose of this institute was to involve all the stakeholders so that they participate in the activities that affected technical and vocational education (Akoojee, 2005).

The establishment of BOTA training standards were designed, qualifications were registered with the Botswana National Vocational Qualifications Framework (BNVQF). Two hundred and eighty four institutions were registered with BNVQF by the end of the financial year 2009/2010. As the years unfolded, the number of registered institutions increased. In 2013 there were three hundred and sixty seven vocational institutions which were registered with three thousand four hundred and fifty seven learning programmes (BQA, 2016). In the same year, the Botswana National Vocational Qualifications Framework was replaced by the National Credit Qualification Framework (NCQF), which was an outcome based framework. Unlike BNVQF the NCQF amalgamated the national qualifications and formed a cataloguing system, which included both general education, technical vocational education and training and the tertiary education, segments (UNESCO-UNEVOC, 2012).

### ***2.9.1 Botswana Qualification Authority***

Botswana Qualification Authority was formed by the Botswana Qualification Act No. 24 of 2013 and replaced the Botswana Training Authority. The functions of the latter was to offer and support the National Credit and Qualifications Framework (NCQF) and to manage

and ensure the quality assurance systems of education, training and skills development, from early childhood to tertiary level (lifelong learning). In 2016, Ministries were reorganized; the Ministry of Education birthed three ministries, which were the Ministry of Basic Education, the Ministry of Labour and Skills Development and the Ministry of Tertiary Education Science and Technology. Due to this reorganization, the technical and vocational educational sector of education responsibilities were divided among the two ministries of Ministry of Labour and Skills Development and the Ministry of Tertiary Education Science and Technology. The certificate offering institutions and Brigades' responsibilities were allocated to the Ministry of Labour and Skills Development (MELSD) while the Diploma offering technical colleges were allocated to the Ministry of Tertiary Education Research Science and Technology (MOTE). These reforms meant that each Ministry carried out its curriculum development roles. This on its own posed a challenge in the sense that the two ministries worked in silos and as such, progression from one level to another. Furthermore these had an impact on the image of the technical and vocational system because it was difficult for the graduates to progress from lower level to higher levels due to lack of a defined pathways system (ETSSP, 2015).

In September 2022 new developments were made, Ministries were once more reorganized. The Ministry of Basic Education and Ministry of Tertiary Education Research Science and Technology were combined to form the Ministry of Education and Skills Development. The sector of vocational education that was at the Ministry of Labour and Skills Development was transferred to Ministry of Education and Skills Development.

### ***2.9.2. Technical Education Financing System.***

The Ministry of Education and Skills Development is responsible for the financing of the sector from certificate to the Diploma under the Department of Tertiary Education and Financing. The National Human Resource Development Strategy recommended the formation of two statutory bodies namely, Botswana Qualifications Authority and Human Resources

Development Council in order to disregard the overlapping mandates and duplication of services to replace Botswana Training Authority and Tertiary Education Council (TEC).

### ***2.9.3. Statutory bodies governing technical and education***

Botswana Qualifications Authority (BQA).

This body is responsible for the maintenance and provision of the National Qualification Framework (NCQF) as stipulated in the Botswana Qualification Authority Act of No 24 of 2013. It also develop the quality management standards of all the Education and Training Providers (ETPs) and registration of the learning programmes. ETPs can only offer the programme only after accrediting with the body. The registration has a validity period of five (5) years in which after it has to be renewed.

Human Resource Development Council.

This body plays a major role in developing the technical and vocational sector. It is responsible for policy formulation and advices on matters concerning National Human Resources Development. Moreover, it manages the implementation of the national Human Resources Strategy and coordinates work placement learning and the Human Resources development fund (HRDF). It offers a training levy, which promotes the development of skills through the levy grant system. Companies, which have a turnover of above a million pula annually, pay a levy. The levy is used to pay for costs incurred during training of employees. The companies are reimbursed through this fund. This reimbursement applies only to those ETPs, which are accredited with BQA (Human Resource Development Council, n.d)

Government Financing.

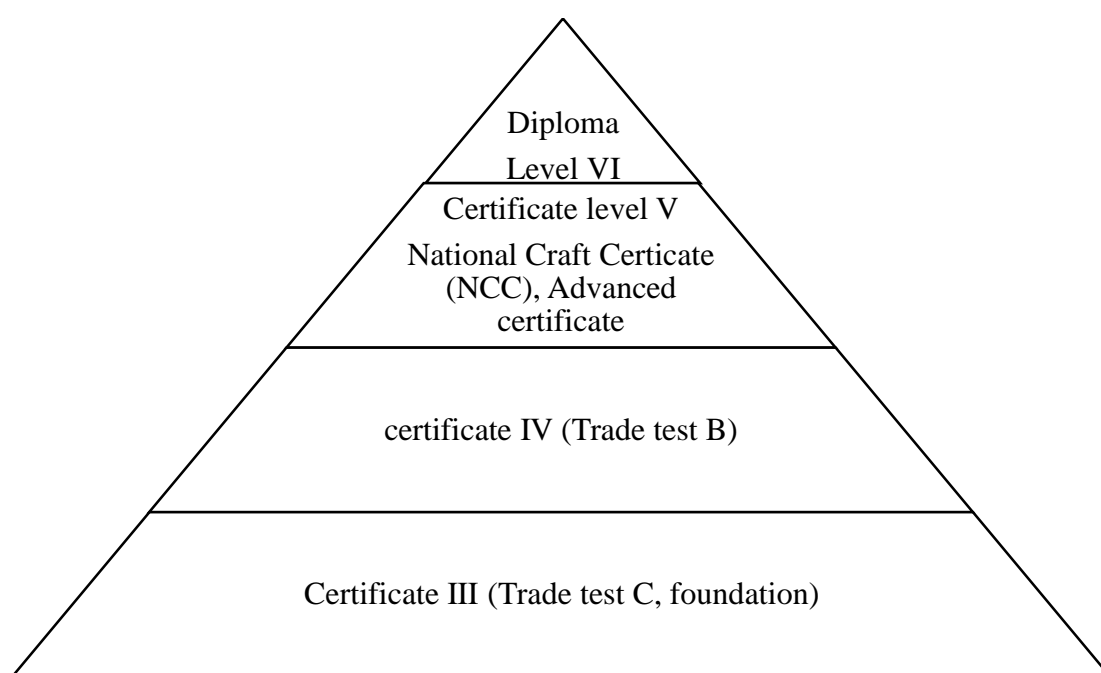
The Ministry of Education and Skills Development is responsible for funding the TVET sector through government. On an annual basis, the government allocates funds to the Ministry and the sector is allocated the funds according to the budget they had estimated. However, it should be noted that the sector is not always allocated the amount they had requested. Despite

its expensive nature the department is always allocated the amount less than that of secondary and other tertiary institutions. For example in the financial year 2020/2021 the proportion of the budget as compared to tertiary from the Ministerial budget was 54%. Tertiary was 29 % and secondary was 33.7%. This figures show that the sector was way under financed despite the recommendations from the ETSSP that the sectors budget should be increased by 7.6%.

## 2.10. Structure of Botswana Technical and Vocational Education.

**Figure 6**

*Structure of TVET in Botswana*



Technical and vocational education starts at secondary schools up to tertiary. Currently the Ministry of Education and Skills Development had introduced a pathways system where the learners are introduced to vocational education in their earlier stages of schooling. The diagram below depicts the pathways of Botswana's technical and vocational education after secondary education

### 2.10.1. Challenges of Vocational Education in Botswana.

Reports from the Education and Training Sector Strategic Plan (ETSSP) showed that TVET sector has long been secluded from the general education. The sector has been despised



because those who are admitted in the vocational centers are termed as failures. Due to this discriminating factor, even those who did not do well in their secondary school would prefer to be in the streets rather than venturing in to vocational training. This has led to the TVET institutions being underutilized. Under funding also is one of the challenges faced by this sector. A policy of how TVET should be implemented in the country is still under development. This poses a challenge because without a guiding policy many operations are not binding.

#### ***2.10.2. The German influence on Botswana Curriculum Development.***

Currently Botswana's TVET sector is developing new curriculum (outcome based) as previously alluded, the German Agency played a major role in the curriculum development process of the Botswana TVET. They had done a number of short term trainings for the curriculum development officers on how to develop an outcome based curriculum. The curriculum development process will be discussed in to detail later in this study.

#### **Summary**

In summary, this section had discussed the evolution of the technical vocational system of Botswana and how it has developed throughout the years. Despite the fact that the TVET sector came from a long way as compared to the independence of the country, Botswana technical and vocational sector still needs a lot of attention in order to achieve the country's vision of moving from a resource based economy to a knowledge based society. It is no doubt that the technical and vocational sector of education is a very expensive sector of education. This calls for government to review its TVET financing if TVET is seen as a vehicle that can drive the economy of the country towards a knowledge based society. During budget allocation TVET should be given priority. The policies that govern TVET in the country are no longer relevant. The sector of TVET changes rapidly as such there is a need to come up with new policies and guidelines which govern the sector and are relevant to the current situation.

## **2.11. Curriculum Alignment.**

The significance of curriculum alignment in an education system cannot be overemphasised. All nation needs to have a curriculum, which is coherent in all the levels. A coherent curriculum will ease the transition from one level to another.

### ***2.11.1. Curriculum Alignment defined.***

The term curriculum alignment is the compatibility between the nations core curriculum regulated by the Ministry of Education and what the educators perform during the process of teaching (Bay, 2016). Likewise, Pence, Justice & Wiggins (2008) in Bay (2016) describe it as ‘the application of a curriculum or an innovation by lecturers in the way curriculum development experts design’. Additionally, congruity has to be the integral part of the...”educational standards, assessment” and other components of education and jointly evaluate effective learning of the students (Bay, 2016). He further summarized the definition of curriculum development as conducting the curriculum in the satisfaction of the stakeholders. Furthermore, it can be described with operations, which are consistent with the required outcomes during the process of education.

In addition to the above, this term refers to the extent to which teaching and learning in the classroom and assessments is in line with the curriculum objectives. It is very important to ensure that the content of the curriculum is coherent with the textbooks, assessments, teaching, and learning in the classroom. This is critical because misalignment will degrade the efficiency of education and damage the reputation of the education system (Kim, Lee, Lee, & Lim, 2022). Non alignment can deter education from its original intentions and thus compromise the quality of the education. In vocational education if curriculum is misaligned, it means that the needs of the country will not be met. The vision of Botswana concerning vocational education is education for production. The products produced should be relevant to the needs of the country. They envision for the graduates of vocational education to be relevant and competent in the

workplace. For this to be achieved, alignment from one level to another, classroom teaching and all other materials required should be a priority during curriculum development. If alignment is achieved, transition from one level to another will be smooth and learners will fit well in the next level.

To sum up this discussion, curriculum alignment scholars posit that, in a logical education system, the envisioned, endorsed, and appraised curriculum must be coherently aligned. The system would ensure that what the learners are supposed to know is (standards) consistent with the content and what they are expected to learn (instruction augers well with the methods of assessment to define their degree of mastery of the content. Nevertheless, the actuality of the matter is that curriculum alignment is dynamic and a difficult process (Ziebell & Clarke, 2018)

Advantages of curriculum alignment.

Alignment of the curriculum ensures that there is commonality and coherence among the all the players in the education system. It will ensure that the curriculum developers, lecturers as the implementers are at par at all times. Alignment will warrant that the efficiency and the original intentions of the curriculum is met. Furthermore, it guarantees that there is congruency among the elements of education, the curriculum, teaching and learning and testing (either formative or summative) (Leitzel & Vogler, 1994).

Curriculum alignment enhances the mastery of content by the students. This is so because, in a clearly configured curriculum, assessments and the course learning outcomes corresponds and are clearly linked together. Secondly, studies have shown that the learners perform better in programmes that are well aligned. Thirdly, a curriculum that is appropriately aligned enhances the efficacy of the curriculum discussions. That is, the developers and the implementers can easily identify the gaps and overlaps within the curriculum. This would help the curriculum developers to attend to the situation while it is still early (Shaltry, 2020). To

comment on the above, a properly aligned curriculum will help to identify any misalignment during curriculum implementation, thus will satisfy the needs of the country, and ultimately lead to a sustainable economic society.

Finally, Curriculum alignment have many positive characteristics, it bridges the gap between the corporal education practices and the hypothetical education principles. It is affirmed that curriculum alignment has positive effects in the development of the institutions of learning and it denotes compatibility between all the constituents of the instructional curriculum. This refers to the objectives of the curriculum, teaching and learning materials and the use of both the formative and summative assessments.

Literature also revealed that, an aligned curriculum will improve both pass rate, and the quality of education. Moreover it will reduce dependence on the government as the learners will acquire relevant competencies and be easily absorbed in the market and thus improve their livelihoods (Elsworth, 2014). To assert to that, if the curriculum is aligned from a lower level to a higher level the learners will be able to use their previous knowledge and connect it with the concepts that they come across in the next level. With that, the learner's academic achievement will be raised.

### ***2.11.2. Types of Curriculum Alignment.***

Curriculum alignment is of two types as alluded by (Edglossary, 2014), that is, horizontal (internal) compatibility and vertical (Internal) compatibility.

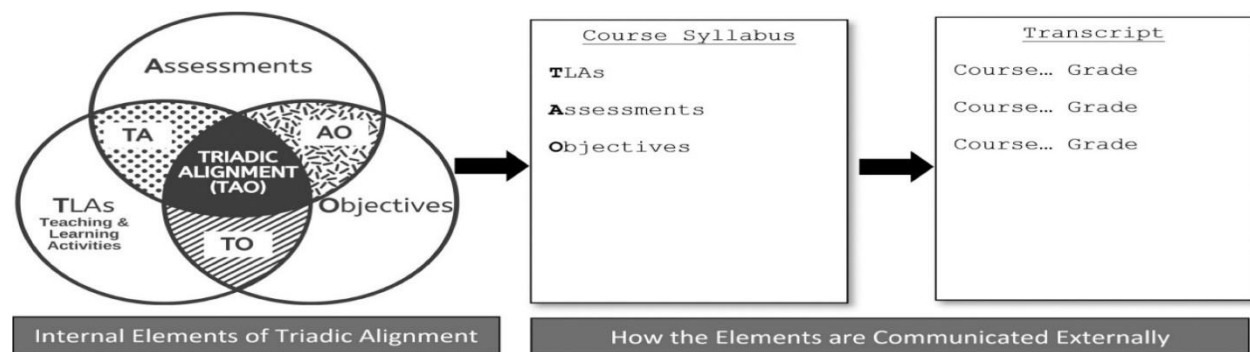
#### **i. Horizontal compatibility (Internal).**

This is the comparison between the program content and the teaching content (Aviles, 2001). Furthermore it can be described as an alignment between what the lecturers do in the classroom and the tests that they develop during the teaching and learning process. Horizontal compatibility is based at the classroom level (Edglossary, 2014). In addition, Shaltry (2020) alluded that, internal alignment is the method of confirming that the three elements of a

program, instruction and teaching and learning activities, tests, classroom activities, and aims, are allied. Internal alignment amongst these three elements is stated as triadic alignment. Internal alignment ensures that the three elements are aligned both theoretically and cognitively, but does not afford a means of linking curriculum across programmes.

The Model of facilitating alignment.

**Figure 7**  
*Triadic alignment*



Firstly, when aligning the curriculum, the triadic model is used to align it internally to ensure theoretical consistency among all the three components that is the teaching and learning activities, tests, and aims. The electronic curriculum mapping system database is used to fast track the organization of the horizontal and vertical data. Below is an illustration of how the model works (Shaltry, 2020).

Description of the model and how works.

Triadic Alignment signifies the linkage among the teaching and learning activities and assessment instruments. The linkage between these features ensures that test items in a program are directly related to the performed tasks (for example, lectures, note taking, and readings) by the learners.

TA-allied programmes will comprise teaching and learning activities that can be drawn directly to specific test items, with teaching and learning activities normally adding toward the results in a program grade, and the test mostly adding to that.

AO signifies the coherence between program test items and goals defined by the teacher. Coherence between the features explains that test items in a program are directly related with to one or more goals. AO-aligned programmes encompass aims that can be directly mapped to specific test items, which amount to the final program grade.

TO symbolizes the coherence between program teaching and learning activities and the aims defined by the lecturer. Allying these components ensures that the teaching and learning activities of the program are directly related to more than one goal. TO-aligned programmes contain goals that can directly be mapped to teaching and learning activities that usually add to the end of programme results.

TAO encompasses a coherent combination of the above three within a single program. A complete triadic alignment denotes that teaching and learning activities, test items, and goals are all coherently linked with each other through one or more elements for example, theoretically, intellectually For instance, within a TAO-aligned program, one goal can be traced directly to both a test item and a teaching and learning activity in a program (Shaltry, 2020).

To comment on the above triadic model, an alignment of the three concepts during curriculum development can yield positive results in a nation's education system and thus produce quality products. Concerning vocational education, this model could help to create a system that could enhance the transition of students from one level to another with ease. The learners when they get to another level they will easily cope with the program and thus achieve higher academic performance. Higher performance will lead to motivation in both the lecturer and the student. When students perform higher, they become innovative and creative. Innovation and creativity will lead to the achievement of the Botswana's vision 2036 initiative of education with production that has been assigned to the vocational education sector. Botswana as a nation wants to move away from a resource-based economy, with an aligned

curriculum, the education sector will produce knowledgeable products who will be able to convert the knowledge that they had acquired into the much-needed skills, which will convert her economy in to a knowledge, based economy.

ii. Vertical compatibility (external).

This is planning of the curriculum at a wider scope. That is the curriculum developed is from a lower level to a higher level (Bay, 2016). For example if it is general education, it will be from kindergarten to a higher primary school level while for higher education the alignment will be from certificate level to Diploma and lastly degree. This study will focus more on the vertical compatibility, as the intentions of the study is to find out whether the curriculum for the certificate offering is aligned with the Diploma curriculum.

To conclude, It is suggested that programmes should be aligned internally first. Shaltry (2020) echoed that, “by aligning the learning activities with the assessments and the learning outcomes, it will provide better chances for the learners to show their previous knowledge”. The moment their internal alignment is realized, programmes can be allied externally to offer themes of comparison across programmes (Shaltry, 2020).

### ***2.11.3. Curriculum Development and Alignment in Higher Education in Botswana.***

In the quest for the production of a competitive human resource, to intensify the quality of education, and to reform its higher education, the country introduced an outcome based education. This move affected both the public and private institutions. To achieve this, Botswana Qualifications Authority (BQA) has been mandated to ensure that all the education sectors comply. To ensure compliance, the authority has come up with a National Qualification Framework which states clearly its expectations from the curriculum developers and the implementers. The framework requires alignment in terms of appropriateness. Learning unit specifications are expected to outline clearly the teaching methods, learner tasks that are relevant to the learning outcomes in all the areas of the programme. Appropriateness is needed

during assessment of both formative and summative assessments BQA designed templates which emphasise the alignment of the methods of teaching and test items.

The research comes from the position that, if the vocational education sector adopts a holistic approach of curriculum development and involve the curriculum developers at the lower levels, the curriculum developers will produce a well-structured curriculum which would benefit the country and lift the face of vocational education. The positive impacts will be seen by the production of highly competent graduates.

#### ***2.11.4. Constructive Alignment.***

As alluded earlier, countries worldwide are moving away from the objective based type of education where the teacher was the fountain of knowledge and taking the lead in everything that was happening in the class. In a traditional education system, the learner was just seen as the recipient of content that the teacher is delivering. Botswana has not been left behind. Recently the curriculum developers are busy with the development of an outcome based curricular. The question, which needs to be answered, is whether there is involvement of the implementers during the curriculum development process because in an outcome based education system the teacher plays a very pivotal role in ensuring that learners acquire the concepts being taught.

Constructive alignment defined.

This is an instructional strategy whereby, what the learners are expected to learn and the manner in which they should learn is clearly articulated before the lesson can be delivered. As such, teaching should be learner centered with tasks that will enhance academic achievement of the learning outcomes. Moreover, the test items are clearly designed to allow for better evaluation of the degree to which the outcomes have been achieved (Biggs, 2014). On a similar note, Kalmpourtzis & Romero (2020) added that, Constructive Alignment describes an education framework, founded on two main features firstly the “constructive”



feature under a constructivist approach of learning which aims to involve the students to create their knowledge, through learning and teaching tasks that have been targeted to the context of a particular learning outcome. The second feature is the “alignment” side, which describes instructors’ activities targeting to facilitate the students’ achievement of the defined learning outcomes with the use of relevant learning tasks.

Biggs (2014) further stated that, teaching and learning is solely learner centered. The teacher is a facilitator. The main aim is what the learner needs to attain, and it outlines the manner in which the learner should be involved in the learning so that they master the content to the level that is required. Teaching strategy is outcome based and the test items are criterion-referenced. Moreover, he postulated that, “Teaching and assessment methods are then designed to best achieve the outcome and to assess the standard at which they have been achieved”.

Background of constructive curriculum alignment.

Constructive curriculum alignment is not a new concept. It was birthed by Ralph Tyler in his book *Basic Principles of Curriculum and Instruction*. He posited that for curriculum to be meaningful the objectives should show the type of behaviour to be established and the context in which it is to function. He further said that learners should be actively involved. He added that learners’ master the concepts that they do better than what is done by the teacher (Tyler, 1949; Biggs, 2014).

The theoretical perspective of constructive alignment.

This refers to the learning outcome (LO) based approach of education whereby, the LOs-based approach to learning regards the learning outcomes as the core of the educational plan: (LOs) are the foundation of the learning experience and at this point, they are regarded as the intended learning outcomes. These encompass what is needed to be achieved at the end of the programme. These may also be termed as exit level outcomes. At this juncture curriculum developers play a pivotal role. They are expected to come up with a map which

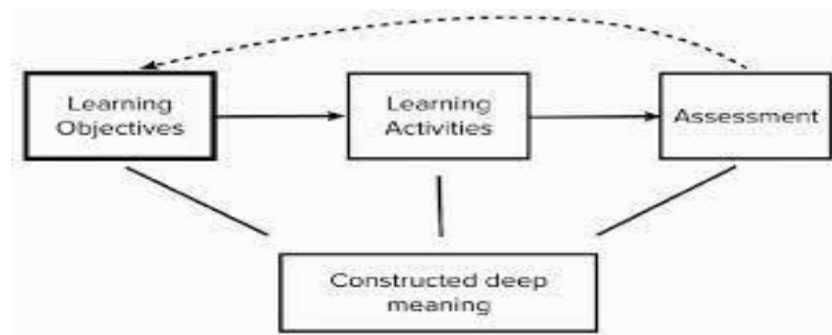
provide guidance on how the implementers are expected to implement the curriculum. A well-developed curriculum should include the teaching methodologies, which will be able to expedite the mastery of the intended learning outcomes and enhance the learners' opportunities of achievement of the projected results (Tyler, 1949; Biggs, 2014).

Biggs identified four main stages of constructive alignment and these are outlined below:

- a. Specifying the learning outcomes
- b. Selection of teaching materials
- c. Assessment of the learners to check mastery of the content
- d. Grading of the learners

**Figure 8**

*Constructive alignment*



### Constructive alignment and the student performance

Studies of constructive alignment had shown that a constructively allied curriculum motivates learners and improves their academic achievement. A study was carried by Fatzllene & Lo Baido (2021) to investigate the relationship between constructive alignment and student motivation and between perceived learning demands. A total of 56 learners from two second year courses in dissimilar study programme answered the questionnaires in the second ( $T_1$ ), seventh ( $T_2$ ), and the final fourteenth ( $T_3$ ) course week. The students were assessed with surface and deep learning approaches at  $T_1$ , and their perceptions of constructive alignment, learning demands, as well as their learning motivation at  $T_2$  and  $T_3$ . Regression analyses showed that

ILO Clarity (i.e., being clear about a course's intended learning outcomes) was coupled with stronger self-competence perceptions, more enjoyment of the course and effort invested into the learning, and higher ratings of the course as useful. Perceiving teaching-learning activities (TLA) as aligned with ILO was associated with enjoyment of the course and with usefulness ratings, whilst the alignment of assessment tasks (AT) with ILO and TLA went with higher learning efforts and usefulness perceptions. Finally, receiving effective feedback went with higher usefulness ratings. Concerning learning demands, TLA alignment was coupled with lower ratings of temporal demands and the frustration from learning, whereas higher levels of perceived AT Alignment went with lower mental demands and frustration perceptions. Finally, AT Alignment and Effective Feedback were coupled with using more deep learning strategies. Surface learning strategies were used less clearer ILO were better, TLA were aligned with ILO, and the more effective feedback was perceived to be. In sum, our findings suggest that CA perceptions are meaningful predictors of student motivation and that CA influences motivation on different 'routes' (e.g., enjoyment, usefulness. This study reveals that alignment of the learning outcomes does not only improve academic performance it also improves the learners motivation level.

#### ***2.11.5. Curriculum Misalignment.***

Types of misalignment.

Curriculum misalignment can reveal itself in two ways; through cognitive misalignment and operant misalignment (Kickert, Meeuwisse, Stegers-Jager, Prinzie, & Arends, 2020).

##### **i. Cognitive misalignment.**

This component involves the content covered during learning, it covers the knowledge and the extent to which it is processed. Misalignment concerning cognitive component is revealed when some learning outcomes are not represented during assessment. (Kickert,

Meeuwisse, Stegers-Jager, Prinzie, & Arends, 2020). Firstly, this disintegration happens because the curriculum is broken down into different subject areas and tests are set at subject level. Accordingly, tests cover the subject objectives and not the curriculum goals. As such, the overall learning outcomes of the curriculum are left out without being assessed. Due to this it has been realised that the individual subject objectives do not necessarily cover the entire programme objectives.

Secondly, the disintegration goes on within the subject, by breaking the subject learning outcomes further into performance criteria and this continues to further move away from original curriculum objectives.

Apart from the disintegration of the learning outcomes being a factor of cognitive misalignment, misalignment can also be caused by that some levels such as skills and knowledge can be easily tested while higher levels such as the analysis and evaluation in Blooms taxonomy are not easy to assess. Furthermore the type of assessment being used can also cause some cognitive misalignment. For example multiple choice cannot assess the creativity and innovativeness of the learner as compared to the essay type (Kickert, Meeuwisse, Stegers-Jager, Prinzie, & Arends, 2020).

## ii. Operant misalignment.

Regarding operant misalignment, the period needed for the objectives to be mastered is more than that of testing that mastery. Even though the learning outcomes are meant for the learners to have achieved a particular topic, for one to pass a level does not need the learner to have mastered the entire topic. For example, for a learner to pass in a certain topic they need a pass mark of 50% depending on the standard set in that curriculum. Subsequently, during testing, learners can still pass a level even if they have not mastered some areas of the subject (Kickert, Meeuwisse, Stegers-Jager, Prinzie, & Arends, 2020).

Effects of curriculum misalignment.

The implications of curriculum misalignment are detrimental to the education sector. For example, some of the knowledge which the curricular intends to cover will not be achieved. In the sector such as TVET, misalignment will have an enormous impact because diversion from the main curriculum would result in the learners not fitting well in the industry and further impact the human resource and decrease in employment opportunities for TVET graduates. On the part of the learner, misalignment can reduce their motivation to learn.

From the discussions above, it is evident that misalignment has detrimental effects in the education system. Shaltry (2020) established three ways in which misalignment in curriculum reveals itself, these are, within the program, among courses/programs, and outside the college where the course is required this might be in the industry where the results of the programme need to be practiced or effected. The study discussed the effects of misalignment of curriculum. This discussion concentrated in the curriculum alignment because it is a requirement to ensure that the curriculum developed is of quality. A quality curriculum will serve the needs of the community and the entire nation. The discussions of this section dwelled more on the benefits and the types of curriculum alignment. It further discussed the curriculum development and alignment in Botswana. The significance of constructive alignment as a vital instruction strategy in the education has been discussed.

## **2.12. Stakeholder involvement in Curriculum Development.**

The currency and relevance of curriculum is very crucial for the production of competent and skilled work force. Therefore, there is a need for consultation with the relevant stakeholders in any field during curriculum development. The support of the stakeholders will ensure that the curriculum developed is current and meet the needs of the employer. The involvement and stakeholder collaboration will guarantee the currency, and ensure that the evolving trends are met and thus production of a reputable workforce and independent who

will meet the needs of the industry (Nelson, 2020). Moreover, Belita, Carter & Bryant-Lukosius (2020) posited that, for education to become applicable and reactive to the changing technological world there has to be effective involvement of the relevant stakeholders. Furthermore, consultation with stakeholders will further curb the challenges that may be encountered during implementation. Collaboration with stakeholders will contribute significantly to the quality of education and thus create a reputable image for technical vocational education. Collaboration will close the gap between the industry, lecturers and curriculum development. The stakeholders to be discussed are the lecturers and the industry.

### ***2.12.1. Stakeholder Concept in Technical Vocational Education.***

Stakeholder involvement refers to the process whereby people, clusters and establishments who are effected or can affect the organization directly and indicate that they have interest and can actively take part in the decision making that concern them (Rowe, Marsh, & Frewer, 2004). Likewise, a stakeholder is any person who has an interest or influence in an organization. It is further described as any person, an association or a group of establishments, which have a specific interest or have a stake in a state and the ability to avert or can influence strategic decision (Belita, Carter, & Bryant-Lukosius, 2020). Strand (2001) Stakeholders participation include using processes that: recognize stakeholders, information sharing, listening to their visions, involving them in planning and decision making processes, contribution to capacity building and empowerment. Furthermore, a stakeholder can be any individual who has the knowledge about vocational education but is not directly involved with vocational education and training (Pollock, et al., 2018) Stakeholders in technical and vocational education can be categorized as internal and external. The internal stakeholders are the students, lecturers and the administration staff while the external are the industry and other associations, which have an interest in the vocational education

j. Benefits of stakeholders.

Engagement of stakeholders in curriculum cannot be overrated. The engagement is an integral part not only in vocational education but also in other sectors of education such as lower and higher education. Many scholars alike concur that stakeholders are a crucial part of curriculum development; the following are some of the benefits as posited by Plewa, Galan-Muros & Davey (2015). In curriculum development, stakeholders' participation is beneficial in the sense that, it informs teaching and learning and motivates lecturers during the delivery. It further gives understanding of the challenges and how they can be managed during delivery. Belita, Carter, & Bryant-Lukosius (2020) added that, if stakeholders are engaged effectively in curriculum development, the vocational educational programs will reflect the previous experiences from teaching and learning. Furthermore the critical role played by the stakeholders ensures that curriculum focuses on the required knowledge and skills and effectively equips the learners with competent skills which will enable them cope confidently with the technological changes of the fourth industrial revolution.

During the process of curriculum development, stakeholders are beneficial because they provide feedback and recommendations concerning their expectations from the graduates at the workplace. They further inform the curriculum with content, modes of delivery, the required evaluation and the qualities required in a particular profession. Additionally, they provide information on the graduates' career path, skills, competencies and the conditions of service in different professions (Matkovic, Tumbas, Sakal, & Pavličević, 2014). They further asserted that, collaboration with stakeholders is critical as it opens discussions concerning encouragements, recommendations, responses and constructive criticism which offers vital input in combining what is to be taught (content) with the teaching methods needed to deliver the curriculum so that it satisfies the entire community. Furthermore, it has been observed that, participation of stakeholders in the process of curriculum development has a positive impact in

curriculum planning, curriculum implementation and evaluation (Uganda National Commission for UNESCO, 2010). Stakeholder participation must be influenced by the viewpoint that underscores empowerment, inclusivity, conviction and teaching (Reed, 2008). He further opined that, there should be clarity of objectives from the beginning.

ii. Types of stakeholders to be engaged in curriculum development in technical vocational educational.

Technical and vocational education's vision in Botswana is to produce the human resource that is competent nationally and globally. That is, the graduates should be competently equipped with both entrepreneurial skills and professional work skills. With that in mind, the stakeholders engaged in curriculum development of technical vocational skills should be those that can offer content, feedback and recommendations relevant to the vision of the sector. Those would be the industry and the lecturers. The industry is expected to offer support concerning the content and scoping of the professionals required and the lecturers will be required to look at the methods of teaching and the availability of the resources required and the competencies.

The recognition of technical and vocational education in Botswana has been minimal. In fact, technical and vocational education has always been viewed as an education for the low academic achievers. The rising unemployment rate in Botswana has overruled this line of thinking. Currently the government of Botswana is realizing that technical and vocational education could be used as the best driver for her socio economic growth and the development of the technological aspect of the country. For these to be achieved there is a need for quality programmes. This quality of programmes can be met through collaboration of the relevant stakeholders and the curriculum developers. Quality will be realized if proper skills and knowledge acquired are relevant to the needs of the country. Relevant skills and knowledge are necessary because they are very instrumental in the economic growth and the nation's social development.



It is without doubt that technical and vocational education is the master key in producing the human resource skilled in entrepreneurial skills required in the ever-changing world. The stakeholder involvement, in curriculum development can help to come up with the work force, which is empowered, who can cope well with the increasing demands of the 21<sup>st</sup> century.

iii. Students.

Student engagement in curriculum development can yield positive results in the sector of education. Students as partakers of education should have a voice in the curriculum that is offered to them. Learners as participants in the curriculum development will enhance the achievement of the objectives and aims of the programme. They will share their sentiments on how the curriculum should be implemented for example in the way the teaching and learning should be delivered. Moreover their participation will give feed back to the developers regarding learner satisfaction and relevance to their needs. In the same vein it will assist in the retention of the students. That is, if the learners are motivated they will be encouraged to stay in the school and complete their programme and if not they will drop out. Their engagement will also help the implementers to administer relevant mode of assessment (Pack & Peek, 2020).

iv. Industry stakeholders.

The high numbers of unemployed technical and vocational education graduates in Botswana may be related to the insufficient engagement of the technical and vocational education curriculum developers and the industry. It is imperative to find out how the engagement of industry stakeholders can influence the employability of the graduates.

Botswana like other countries of the world is faced with the challenge of graduate employability. Botswana's youth unemployment rate is measured at 24.5% (StatisticsBotswana, 2021). This situation will further increase as the tertiary institutions are

continuing to enroll learners in their institutions regardless of the increasing unemployment rate. The reason for these higher figures may be attributed to the skills gap or mismatch of skills that are not aligned with the needs of the industry. This might be a result of insufficient involvement of industry stakeholders. The mismatch of skills contribute highly to unemployment because the industries need workers that are skilled and would not require training when they join their industries.

Against that background, there is a need for the curriculum developers to engage industry during curriculum development. In concurrence with the above sentiments, Otache (2022) attributed that, in order to enhance the employability of the graduates, there is a need to collaborate with the industry. Collaboration with industry is very vital because as the employer the industry is aware of the skills and knowledge they require. As such they will offer the information that is relevant to their needs. The information acquired will assist the graduates to cope well with the technological changes that are taking place in the current world of work. Comfort (2012) declared that, the global changes in innovation have revealed that the future is uncertain more so that this involves the knowledge skills and technological competencies that are regarded as the base for the socio economic growth of the nation (Comfort, 2012). These uncertainties can be averted by the involvement of the industry in the development of the curriculum. Furthermore, he opined that, it is evident that, quality vocational education will better the lives of the individuals and guard against incompetent work force. Likewise, highly skilled human resource have high performance rate in the workplace and that will positively affect the growth of the organization. With that, the organizations will be motivated to absorb the graduates from the technical and vocational education sector. On the contrary, if the graduates have low qualifications and low skills, their performance level in the work place will be minimal and thus the organization's economic growth will be impacted.

v. Lecturers as stakeholders in curriculum development

Lecturers are the pillars of the curriculum implementation process in the education sector. They are equipped with the teaching skills, information on the materials required for the achievement of the programmes offered and methodologies required in the course of study. With this in mind, it goes without saying that their input in curriculum development should not be overlooked. In concurrence with the above, Wilford (2018) said that, lecturers are specialist researchers, instructors and curriculum workers and experts in the crafting of the teaching materials for the learners. He further added that, lecturers also ensure that curriculum is implemented accurately and ensure that what is taught is relevant to the status quo. Beyer & Apple (1998) added that the engagement of lecturers in the process of curriculum development also to equips them professionally because the skills and the knowledge that they acquire from engaging in the curriculum development process enhances capabilities. Lecturers as the directors of curriculum implementation during teaching and learning their input in the development of curriculum will guide on how the curriculum will be implemented and the teaching and learning methods that are required (Mbarushimana & Allida, 2017 ).

vi. The benefits of inclusion of lecturers during curriculum development process

It is prevalent that during curriculum development many stakeholders should be involved. Stakeholders such as policy makers, politicians, industry, community and the lecturers are very crucial and thus need to be consulted. Among these; this research will focus more on the inclusion of lecturers during the process of curriculum development. Lecturers have devoted themselves to educating and equipping the learners with life skills during the process of teaching. It should be noted that lecturers do not only impart prescribed education but also equip learners with social skills that they need in order for them to fit well in the society that they live in.

In support of the inclusion of lecturers during curriculum development process, Mbarushimana & Allida (2017) posited that, lecturers play the following roles which are very critical in coming up with a quality curriculum. These are as follows:

- i. Experiment with learners during curriculum development
- ii. Provide previous experiences knowledge and competencies
- iii. They are equipped with practical skills that they acquired in their daily interactions with the learners.
- iv. Lecturers can check whether the content being developed is at the level of the students and relevant to the diverse learning abilities.
- v. Lecturers as game players they need to understand the rules of the game as their participation in the development process will enable them to fully understand the curriculum during implementation.
- vi. They encourage enthusiastic presentation as they play a critical role in curriculum development
- vii. As agents of education they are the advocates for a quality curriculum
- viii. They are the overall curators of educational development
- ix. They possess the expertise that ensures the achievement of the content during implementation process (Mbarushimana & Allida, 2017 )

In addition to the above Elliot (1994) conducted a study in the Tanzanian schools and concluded that inclusion of the lecturers in curriculum will benefit the lecturers during implementation by the following:

- i. Involvement in the curriculum development process helps instructors to restructure the way they view knowledge and align it to the methods of teaching and learning.
- ii. They view things in a broader way and are versatile in the way they teach rather than being narrowed to a singular practice.

- iii. Participation will provide the teacher with opportunities to abide to the practice of setting external curriculum requisites

a. A study on teacher participation in curriculum development

Studies have been conducted concerning the participation of lecturers in curriculum development worldwide. It is evident that in most countries, teacher involvement is minimal. Even so, in Rwanda lecturers have been fully involved during the process of curriculum development especially in the sector of technical and vocational education (Mbarushimana & Allida, 2017 ). They further forwarded that during the studies the findings revealed that, participation of lecturers in the process was insignificant or none due to the following challenges,

- i. Lack of professionalism from the lecturers
- ii. Insufficient skills on curriculum
- iii. Lecturers perceiving themselves as insubordinates
- iv. The use of top down approach of curriculum development process from the centralized education system.
- v. Lecturers distancing themselves from the role of curriculum development

Some experiences of lecturers about the extent at which they were involved in the curriculum development process would be discussed below:

b. Experiences of teacher involvement in curriculum development in other countries

The South African context.

A study was conducted by Carl (2005) where he wanted to find out whether lecturers are involved in curriculum development process and if involved, which roles do they play in the process. The first cohort of the study that included the secondary and primary schools, the results indicated that, the lecturers did not take part in the development of the curriculum and they participated only in the curriculum implementation process.

In realizing, that the lecturers were excluded from developing the curriculum Carl (2005) was motivated to conduct another study where he wanted to find out the impact of exclusion of the lecturers from the development of curriculum. The results revealed the following:

- i. Lecturers decried of difficulty in the implementation of the curriculum such as a congested curriculum
- ii. Insufficiency of relevant teaching materials
- iii. Inadequate access to Information Communication technology

These findings are in alignment with the literature that lecturers as implementers of the curriculum should be involved in curriculum development because exclusion poses challenges as alluded from the above studies. Carl (2005) added that the exclusion of lecturers is seen also in their code of conduct that it does not include lecturers in curriculum development. It contends that lecturers should refrain from being curriculum developers instead curriculum should developed somewhere and lecturers should just focus on curriculum implementation. The main gap among all these is that there is minimal training and guidance for the lecturers concerning the implementation process.

#### The context of Ghana

Abudul & Mensah (2015) conducted a study in Ghana on the barriers that hinders the participation of the lecturers from curriculum development from 130 lecturers. The findings of the study showed that Ghanaian lecturers are completely not provided the opportunity to be involved in curriculum development. The teacher's role is to implement the readily available curriculum. The results were analyzed in conjunction with the other findings from other countries such as Nigeria and South Africa. The studies revealed that, lecturers acquired their different qualifications in their different fields from their respective institutions and there is a commonality that they all have little or insignificant skills in curriculum development processes. Therefore, to close this gap it would be ideal to involve them in curriculum

development once they are in the field. The authors also decry that there is less communication between the curriculum developers and the implementers. The other barrier cited was the deficiency of role clarity and unclear processes especially in South Africa. Moreover there was insufficient knowledge in curriculum theory and instruction, teaching load, incompetency in curriculum development, lack of funding (Abudu & Mensah, 2015)

#### The case of Zimbabwe

The critics on the effectiveness of Zimbabwean curriculum which was planned by the Ministry of Education in the unit of curriculum motivated Chinyani (2013)) to carry a study on curriculum. The sole aim of the study was to respond to the criticisms raised. The study revealed that 70% of the projects innovated post-independence failed before they did not achieve what had been planned. The main reason, which led to the failure, was that the lecturers were not involved or minimally included in the planning and the development of the curriculum. Chinyani's study like other studies previously discussed studies, show that lack of participation by the lecturers have negative impact on the effectiveness of curriculum achievement. He concluded that if lecturers are involved they will take ownership of the curriculum and they would ensure successful implementation of curriculum (Chinyani, 2013).

The following claims were raised as a result of non-involvement of lecturers during curriculum development.

- i. Unconducive working environment
- ii. High teaching loads
- iii. Lack of resources to support the curriculum
- iv. Insufficient funding
- v. Unqualified lecturers to offer the curriculum
- vi. Some areas of the curriculum might not have lecturers who can offer the subject
- vii. Lecturers do not see curriculum development as part of their duties

viii. Incompetency in curriculum development by some lecturers (Chinyani, 2013).

Similar to other studies this study supports the contention that lecturers are the pillars of education as such their involvement in the process of curriculum development is profound Botswana context

Botswana's education system adopted the top down model of curriculum development where curriculum is developed by the curriculum developers with the assistance of experts from outside. The curriculum development unit decides when the curriculum is due for review (Maruatona, 1994). The top down model creates challenges for lecturers as it limits their creativity and ownership. This is very detrimental for a country such as Botswana because it affects the quality of education. Lower quality education system will lead to an incompetent human resource and further has an effect on the socio economic status of the people.

In a study carried out by Wright in 1995 the findings revealed that the participation of lecturers in curriculum development is not yet clear and this caused a conflict of role clarity and confusion between the Ministry of education curriculum developers and the lecturers. Wright (1995) recommended that, the role of lecturers in curriculum development should be legitimized if quality curriculum is to be achieved. Furthermore, Wright like other scholars in the field of education posits that, lecturers play a critical role in the curriculum that decides the achievement of learners during curriculum implementation. Similar to other studies his study alluded the following sentiments that (Wright, 1995);

- i. Non-inclusion has negative effects on the professional development of the lecturers.
- ii. The full potential of the lecturers cannot be recognized.
- iii. The top down model hinders the development of quality education as it repudiates the development of quality curriculum.

On the other hand if lecturers are included,

- i. They will be empowered in the pedagogy and teaching methods



- ii. It increases the success of implementation of the curriculum (Wright, 1995).

The findings of the studies conducted in all the countries discussed have revealed that inclusion of lecturers in curriculum development is minimal and in some countries inclusion of lecturers in curriculum development process is non-existent. The Scholars have a common recommendation that if lecturers are involved in curriculum development; there is going to be improvement in the implementation process, quality of the curriculum developed and learner achievement will be increased and relevant teaching and learning materials would be sourced. They believed that, the lecturers would have full ownership of the curriculum and thus be motivated to offer it.

In summary, it has been discussed that the inclusion of internal and external stakeholders is very pertinent during the process of curriculum development. The importance of internal stakeholders in this study refers to the lecturers. Lecturers are significant as developers because they have information on how the programme is to be delivered and the resource that are required to offer it. The external stakeholders on the other hand will offer information on the relevance of the programmes as they are knowledgeable on the currency of the industry needs. They are also well vested with the kind of expertise the industry require.

### **2.13. The Curriculum Development Framework, Policy and Legislation.**

A curriculum development framework of any educational sector should maintain quality and accountability. The development of the framework should ensure that, the educational programme developed is relevant and has covered all the skills, competencies and the knowledge that the learner requires in the programme of study. A curriculum development framework is a document that is very critical in the education sector of any nation. A well-crafted curriculum development framework will ensure the quality of education that all nations aspire to have. An innovative tool is required for curriculum development. A quality education is beneficial, as it will equip the beneficiaries with skills and knowledge that are required for

the development of the nation. With the above sentiments, a curriculum framework should full fill requirements of the society. Education of any nation should be a pillar for the national development as such it is recognised as a tool that can change the social and economic status of the people of the nation

### ***2.13.1. The Curriculum Development Framework.***

The curriculum development framework is regarded as an overall manuscript that satisfies the educational vision of a nation. It provides the broader objectives, goals and the objectives of the curriculum in the different levels of education. It describes the perspective behind the curricular and the instructional design that are required to achieve the philosophy. Furthermore, it .shows the structure of the curriculum, the subjects to be taught, and the motivation behind the inclusion of a particular subject in the curriculum. It also includes the duration of the different subjects included for each level. It further offers strategies on how the curriculum should be delivered and the stakeholders involved. (Stabback, 2016). This document plays various roles in education:

- i. It places the vision of the nation, socio economic framework, educational standards, and the policy on education in to the curriculum perspective
- ii. It sets out the mission, goals and objectives of the curricular at different levels of education in order to ensure smooth transition from one level to another.
- iii. It explains the fundamental philosophy of education of the curriculum and the teaching and learning methods required and the assessment methods suitable to achieve the philosophy.
- iv. It prescribes the necessities needed for the implementation of the curriculum, monitoring and evaluation. It gives the implementers a clear understanding of the suitable methods, criteria for assessment. Furthermore, it accords all the educational

stakeholders (policy makers) on how they can contribute to the achievement of the vision of curriculum developed. (Stabback, 2016)

- v. It provides direction to the implementers on which resources are relevant for the achievement of the curriculum

### ***2.13.2. The background of Curriculum Development in Botswana.***

In 1885, Botswana was affirmed a British Protectorate even though not much was done in terms of educational infrastructural development , as it was thought to be a semi desert country which would not benefit the colonizer (Maruatona, 1994). The education was financed by the churches. The churches decided the content of the curriculum. The people were mainly taught discipline and obedience. The intention of the curriculum was to produce people who would follow the instructions blindly without voicing out their concerns (Youngman, 1986).

Botswana attained its independence in 1966. Post-independence Botswana like majority of the African countries that were colonized by the British followed the Western educational policies. As time unfolds, the educational sector reacted against the colonial education policies and formulated its education policies, which were relevant to the needs of the nation. The motivation behind the change was to come up with a curriculum that was socially inclusive and can empower the people. To facilitate the change, a National Commission on Education was set in 1976. The commission came up with a questionnaire that was used to collect information from the people on what to be included in the curriculum. The commission came up with a report from which a white paper was developed by government that provided the foundation for education after independence (Maruatona, 1994). The recommendations of the commission birthed the Curriculum Development and Evaluation Unit operating under the Ministry of Education and Skills Development. Currently the unit is called the Curriculum Development Division. Its functions are to develop teaching and learning

materials and to evaluate the programmes. The unit develops the teaching materials for primary and secondary education only. It came up with the goals and objectives of the programmes.

### ***2.13.3. Education Policies and Legislation in Botswana guiding Curriculum Development.***

#### **i. National Commission on Education (Education for Kagisano)**

The National commission on education was formed in 1975. It was mandated by government to assess the education system and come up with the curriculum that is relevant to the needs of the people. The results of the commission would be used as a mirror and will reflect how the nation thinks and what the people aspire to become. The conclusion after the commission was that, the nation should continue to use the British system of education (Bagwasi, 2019). This conclusion was not surprising because during that time, not many people were well versant with formal education as such they would not know much about what to expect in terms of curriculum development. Even so, the government wanted the education to be contextualized to the Botswana context. They wanted the curriculum to include subjects such literature, art, music, languages, practical subjects, history, geography and science and practical subjects. Even though the government wanted to contextualize the curriculum, Setswana as a national language was not included in the curriculum. The curricula replicated that of the British and Americans (Botswana Government, 1977). Bagwasi (2019) further said that the intention of the government to contextualize the curriculum could not materialize due to insufficient locally made materials to be included in the curriculum, the work place which required people who have human resource trained in Western education. Western institutions continued to be seen as offering excellent quality education (Bagwasi, 2019). This commission was silent on vocational education (Tabulawa, 2009)

#### **ii. The Revised National Policy on Education (RNPE)**

This policy was incepted in 1994. It was set to look at the fortes and flaws of the education for Kagisano policy. During this era, the Botswana's social and economic

development was growing at a faster rate. The higher rate of growth meant the increase in work force demand and more posts were required by the nation. Furthermore, it meant that, more programmes that are diverse were required. The RNPE purported that for the government to meet the demands of the rapidly growing society and economy, there is a need for the revision of the curriculum so that it includes the pre- vocational subjects such as agriculture and design and technology. The policy, argued that the introduction of these subjects would increase the employability of the graduates and transition from one level to another. These two policies influenced mostly the secondary and primary education system of Botswana.

#### ***2.13.4. Remarks on the Transformation of Technical Vocational Education in Africa.***

In case of the five African countries that had been discussed above relative to the development and significance of technical education it had been observed that pre independence their curriculum was influenced by their colonial master. Post-independence has shown a great transformation which was influenced by the need for skilled manpower needed to change the livelihoods of the citizens. In the early years of independence technical vocational education was not valued that much many people's interest was on academic education with which after completion of their education they would get a white collar job. As time unfolds all the countries were faced with high unemployment of youth even after their graduation as the market for white collar jobs is flooded. That led to the governments realizing that technical and vocational education can be a remedy for that. Furthermore, the governments realised that the high rate of unemployment impacted their global economic standing. The governments came up with the technical and vocational education policies that transformed the TVET sector. Policies targeted the curriculum development process.

Though the governments had realised the importance of technical and vocational education towards the development of their economies, the sector still faces a lot of challenges regarding its implementation. It still faces challenges such as lack of resources both human and

infrastructure, funding, obsolete equipment in the colleges. With regard to the stakeholder involvement towards the implementation of TVET, the governments are facing a challenge of minimal involvement and this has led to the mismatch of the curriculum with the industries. This mismatch of the curriculum further raises the unemployment rate as the graduates could not be absorbed in the industry. This further tarnished the image of TVET.

#### **2.14. The Curriculum Development Models.**

The intensity of globalization and the technological changes had resulted in economic international competitiveness among nations. This has prompted nations worldwide to reform their systems of education with the intention to place themselves in a favorable competitive economic setting. This setting requires a competitive worker with relevant skills and knowledge. This requires a creative, independent, flexible, creative thinker, and a problem solver (Tabulawa, 2009). To achieve that, there is a need for curriculum models that can produce graduates that meet the demands of the global changes. Effective curriculum models should cater for the needs of all stakeholders who have interest in the product produced. In light of this study, the stakeholders will be the lecturers and industry. The Botswana curriculum especially during delivery, the methods are predominantly teacher centered and do not emphasise much on the input of the learners. As alluded earlier Botswana was a British colony, this style of teaching was adopted from the British curriculum. The curriculum was developed without the much consultation with the stakeholders, especially lecturers to guide on how the content included can be delivered (Ajao, Alegbeleye, & Westfall-Rudd, 2022).

The Botswana technical and vocational education has been accused of not meeting the demands of the industry, and this resulted in the non-employability of the graduates. The foreign curricula is not effective in meeting the demands of the society. With these sentiments, the model that seem to be relevant for this study is the Analysis- Design-Development-Implementation-Evaluation and will be discussed below; I believe that if the model is used

during curriculum development the sector of TVET will produce competent graduates as it is a more inclusive model.. The author acknowledges that there are numerous models that can be used during curriculum development. This research will discuss two approaches to curriculum development. After that, the researcher will at the end give her opinions regarding which method the research will adopt.

#### ***2.14.1. The Six steps Approach to Curriculum Development.***

The process of developing a curriculum is very crucial at all the levels of education. There is a need for an organized method towards development and evaluation of the curriculum in order to make the best use of the initiatives (Kern, 2009; Khamis, Satava, Alnassar, & Kern, 2016).

Curriculum development can be approached in different styles David Kern devised a six step approach for curriculum development approach which was developed for the medical practitioners (Sweet & Palazzi, 2015). I had realised that this framework can also be suitable to technical and vocational education if followed well. The six steps approaches to curriculum development are listed below and will be discussed in relation to curriculum development of technical and vocational education. Daren stated the following steps (Sweet & Palazzi, 2015);

- i. Identification of the problem or the needs assessment stage
- ii. Targeted needs assessment
- iii. Goals and objectives
- iv. Educational strategies
- v. Implementation
- vi. Evaluation and feedback (Sweet & Palazzi, 2015).

Step 1: Identification of the problem or the needs assessment stage: this stage attempts to answer the “why” question of the need of that particular programme (Kern, 2009). The response to this question may be comprehensive and should show a difference between the

current curriculum and what needs to be changed in it. It is important to recognize the target group (Khamis, Satava, Alnassar, & Kern, 2016). For example the student's needs (knowledge based learner perspectives and student's willingness to learn) and the needs of the industry in which the student will be working after completion of their studies (Khamis, Satava, Alnassar, & Kern, 2016; Chen, et al., 2019; Kern, 2009; Sweet & Palazzi, 2015).

The identification and needs assessment can be done through reviewing the information that is available and the novel data that has been collected (Kern, 2009). The novel information can be done through interviews, research data that is collected from the students, industry, the curriculum implementers and the community at large (Sweet & Palazzi, 2015). After the completion and articulation of the needs assessment, the team has to come up with a rationale statement that pronounces the significant conclusions discovered from the needs assessment (Chen, et al., 2019). This helps to keep the curricular on focus, it can only be revised if there was an omission when it was developed. The needs assessment and the rationale are the foundations of curriculum development (Khamis, Satava, Alnassar, & Kern, 2016; Chen, et al., 2019; Kern, 2009; Sweet & Palazzi, 2015).

#### ii. Targeted needs assessment

This phase involves the articulation and narrative of the content to be included, together with prioritising the content to be covered (Khamis, Satava, Alnassar, & Kern, 2016; Chen, et al., 2019; Kern, 2009; Sweet & Palazzi, 2015).

#### iii. Crafting Goals and objectives

Goals are very crucial in the development of the curriculum. The goals are the overall statements that a learner has to achieve at the end of the programme (Kern, 2009). This encompasses the knowledge, skills and attitudes. The objectives are the explicit and measurable skills that the student has to show at the end of the session or after performing a task (Chen, et al., 2019). The goals are significant and assist in defining the overarching strategy. The



objectives are critical for measuring the success of the curriculum (Khamis, Satava, Alnassar, & Kern, 2016; Chen, et al., 2019; Kern, 2009; Sweet & Palazzi, 2015).

Crafting goals is not much demanding as compared to the objectives because they are general accounts of knowledge while the objectives are more demanding because they need to be more detailed and explicit (Sweet & Palazzi, 2015). It is important that objectives are understood by both the student and the lecturer (Khamis, Satava, Alnassar, & Kern, 2016; Chen, et al., 2019; Kern, 2009; Sweet & Palazzi, 2015). Most importantly, there is a need for the objectives to be specific, measurable, attainable, realistic or relevant and time bound (SMART).

#### iv. Educational strategy/ selection of teaching and learning strategies

Selection of the teaching methods and techniques for the delivery of the new programme assist in envisaging the achievement of the curriculum developed (Chen, et al., 2019). There is a need to consider the coherence between the teaching methods and subject. When selecting the teaching methods for the students, the lecturers and teaching materials should be considered (Khamis, Satava, Alnassar, & Kern, 2016; Chen, et al., 2019; Kern, 2009; Sweet & Palazzi, 2015).

#### v. Implementation

The implementation stage is carried out in divergent phases; firstly it requires identifying the resources. Resources include, human resource, time, infrastructure and budget (Sweet & Palazzi, 2015). Human Resource include the teaching staff, nonacademic staff and information and technology (IT) it is required for computerized units). Time refers to the period required for a particular student to complete his or her stay in the institution (Khamis, Satava, Alnassar, & Kern, 2016). The infrastructure refers to the facilities such as workshops, laboratories and classrooms needed for teaching and learning. Funding refers to the cost that will be incurred for the accomplishment of the training, inclusive of the cost that might be

hidden (Khamis, Satava, Alnassar, & Kern, 2016; Chen, et al., 2019; Kern, 2009; Sweet & Palazzi, 2015).

The second step of the implementation process is seeking buy in from both the internal and external stakeholders in cases where there are financial needs or a need for resources. The stakeholders refer to those people that are directly affected by the curriculum (Kern, 2009). Buy in from the stakeholders have a positive impact in ensuring that the curriculum becomes successful (Chen, et al., 2019). The support from the external stakeholders can be handy when there is a lack of resources. For example in teaching technical vocational and the institution does not have a certain resource required in the curriculum, the institution can partner with the industry which has that particular machine and deliver that component (Khamis, Satava, Alnassar, & Kern, 2016; Chen, et al., 2019; Kern, 2009; Sweet & Palazzi, 2015)..

Thirdly, the development of the implementation plan, this is a plan which stipulates how the curriculum is going to be implemented (Chen, et al., 2019). This encompasses all the steps concerning the delivery of the curriculum. At this stage, barriers might be anticipated and a mitigation strategy must be developed in order to alleviate the challenges (Khamis, Satava, Alnassar, & Kern, 2016; Chen, et al., 2019; Kern, 2009; Sweet & Palazzi, 2015).

Lastly the delivery of the programme, this is the implementation period during which the programme is delivered to the stakeholders. It is crucial to pilot the curriculum in order to gain buy in and to establish the challenges that may be encountered and come up with solutions so as to increase the achievement level (Khamis, Satava, Alnassar, & Kern, 2016; Chen, et al., 2019; Kern, 2009; Sweet & Palazzi, 2015).

#### vii. The evaluation stage

This is the process used to determine the success or worth of the programme. It is the last stage of the curriculum development process. The evaluation stage involves all the phases of curriculum development spanning from the needs analysis until the implementation phase.

It is normally recurring and repetitious. Evaluation in education can be carried out in two ways (Khamis, Satava, Alnassar, & Kern, 2016; Chen, et al., 2019; Kern, 2009; Sweet & Palazzi, 2015). It can be done through formative and summative evaluation; Formative evaluation is an educative evaluation that is carried in the form of tests, quizzes or topic test (Kern, 2009). It is critical during the initial phase of the curriculum development because it can help to identify gaps and prospects for enhancement. Summative assessment is carried out at the end of the implementation phase. Its results helps to make conclusion about the effectiveness of the programme, it gives feedback to the stakeholders about the programme (Khamis, Satava, Alnassar, & Kern, 2016; Chen, et al., 2019; Kern, 2009; Sweet & Palazzi, 2015).

The critical stages of evaluation include the following;

- i. Development of an explicit plan of action on how to use the findings
- ii. Clearly outline how the objectives will be measured.
- iii. Data collection
- iv. Data analysis
- v. Implementation of the evaluation findings

Firstly, the initial stage of evaluation determines the consumers of the findings and the way the findings would be used. A plan of utilising the findings should be reflective of how the results would be disseminated and the target group (Khamis, Satava, Alnassar, & Kern, 2016; Chen, et al., 2019; Kern, 2009; Sweet & Palazzi, 2015). The plan should specify the kind of measures to be projected founded on the findings. For example, report findings might lead to change, termination or intensifying the programme (Kern, 2009). The real use of the programme happens after the evaluation process. it is advisable to have a detailed plan of action to guarantee that the findings impact the curriculum, with the aim of upgrading the education, student and facilitators experience and ultimately the industry and the nation at large (Khamis, Satava, Alnassar, & Kern, 2016; Chen, et al., 2019; Kern, 2009; Sweet & Palazzi, 2015)..

Secondly, the second step involves putting the objectives in to practice and strategizing on data collection methods. Objectives can be operationalized by the use of tests, and other forms of assessments such as portfolios and practical (Khamis, Satava, Alnassar, & Kern, 2016; Chen, et al., 2019; Kern, 2009; Sweet & Palazzi, 2015). The objective must be specific and measurable and stipulate the type of assessment learners should be given. That is, the objectives should show whether the assessment is a norm referenced based assessment or criterion referenced (Khamis, Satava, Alnassar, & Kern, 2016; Chen, et al., 2019; Kern, 2009; Sweet & Palazzi, 2015).

Thirdly the data collection stage includes the data collection methods such as interviews, with the learners and the lecturers. If the data that was collected involved the use of quantitative methods, data analysis ought to be done at the end of the data collection exercise. However, if the data was collected qualitatively, data analysis is done as the exercise continues. This stage is more repetitive. The analysis enlightens the following collection of data (Khamis, Satava, Alnassar, & Kern, 2016; Chen, et al., 2019; Kern, 2009; Sweet & Palazzi, 2015).

Finally in the last stage the findings of the evaluation stage are put in to place and the experiences learnt are applied to the curricular informed by the operational plan, the stage encompasses, information dissemination to those that have interest in the curriculum for example the stakeholders, and put in to action. The findings to amend the objectives if need be. The evaluation process is a continuous process and it is used for curriculum improvement (Khamis, Satava, Alnassar, & Kern, 2016; Chen, et al., 2019; Kern, 2009; Sweet & Palazzi, 2015).

To conclude, it is crucial to follow an organized and orderly process when developing a curriculum as this would strengthen the teaching and learning process. This would further help to identify the gaps in the curriculum and make it easy for the developers to address the

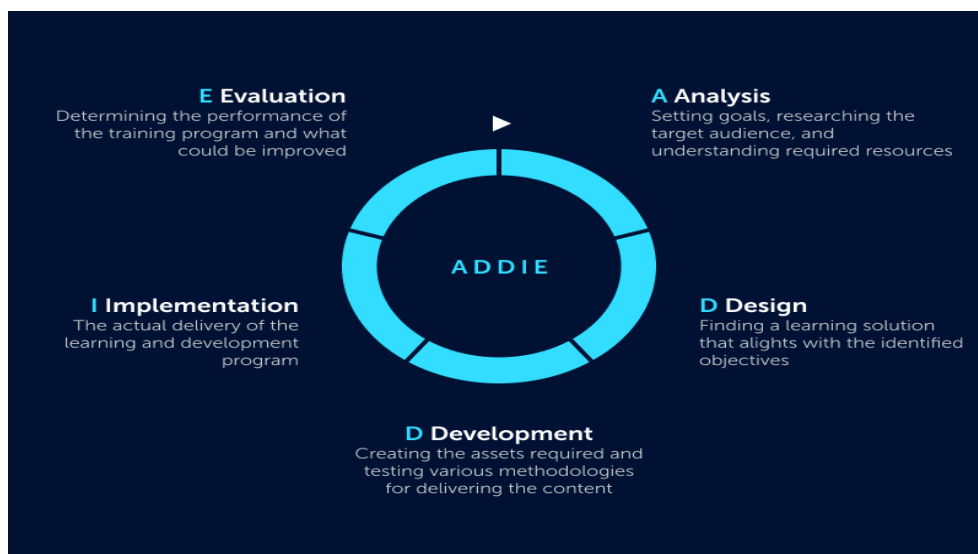
issues. A structured curriculum further assist the developers to know whether the gaps will require them to come with a new curriculum or amend the current one.

#### ***2.14.2. The Analysis-Design-Development Implementation Evaluation (ADDIE).***

This model is a five stage framework that is usually used in program development. The model is a collaborative process which involves all the stakeholders both internal and the external (Rahman & Duran, 2022). This collaboration can yield the results which will ensure production of a quality curriculum. It promote student-centered methods rather than teacher centered methods (Peterson, 2003; Rusdi, Sirajuddin, & Alfah, 2022).

**Figure 9**

*The five stages of the ADDIE model*

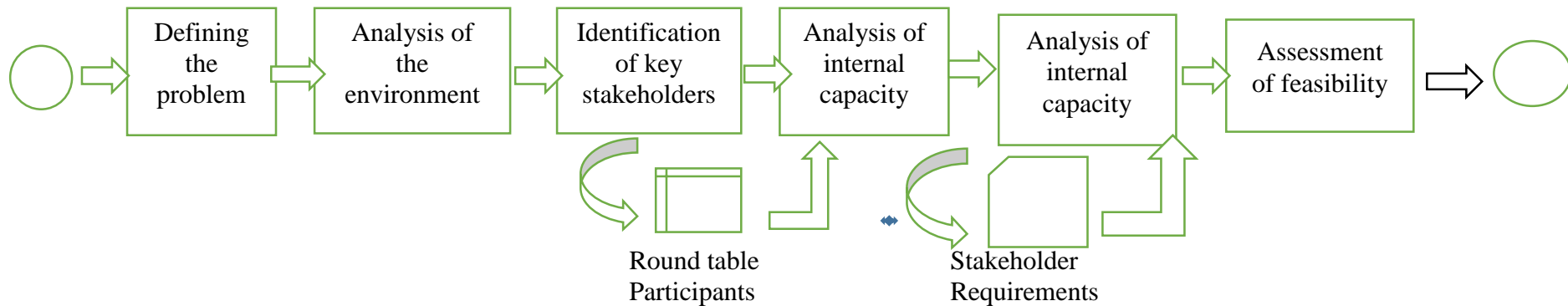


#### **Phase 1: The analysis phase as a sub process**

This phase involves the identification and definition of the target group, the aims, the objectives; environmental scanning and the relevant stakeholders who are the consumers of the programme being developed. This assist in the realisation of the infrastructure, human resource, financial and operational effectiveness (Rusdi, Sirajuddin, & Alfah, 2022). During this phase, there is definition and development of a clear recognition of the needs of the audience and the challenges that may be encountered. It further realises the previous knowledge, skills and the

anticipated results (Matkovic, Tumbas, Sakal, & Pavlicevic, 2020). Peterson (2003) concurred that during this phase the developers conduct the needs analysis to determine the needs of the target group by differentiating between the learners previous knowledge and what they are expected to acquire at the end of the programme. At this point, the developers and the trainers examine whether the standards and competencies are what the learners require at the end of the programme (Peterson, 2003; Rusdi, Sirajuddin, & Alfah, 2022). Furthermore, they check whether the data from the previous programme evaluations is available if the programme was taught before. Accordingly, a task analysis force can be put in place to check the content or outstanding skills that are specific to the career or programme (Seels & Glasgow, 1998; Rusdi, Sirajuddin, & Alfah, 2022). The course subject matter may be scrutinized with the help of the materials needed for the programme such as textbooks, syllabi, and the use of other resources such as the internet. Additionally, this analysis is carried out to establish what the learner should study (Seels & Glasgow, 1998; Rusdi, Sirajuddin, & Alfah, 2022). The amount of the content to be covered is decided by the developer. Subsequently different teaching and learning methods will be varied to cater for all the learning capabilities. If the programme was once reviewed, the previous standards and competencies will be used as a benchmark during the process (Peterson, 2003)

**Figure 10**  
*Analysis Phase activities*



This process is used in the Business Process Diagrams (BPD). The figure above shows the level at which the various stakeholders participate in the process.

#### Stage 1: definition of the problem

This stage is expected to produce a clear synopsis of the challenges, in the current curriculum basing on the prescribed formal and non-formal remarks and the responses from the stakeholders (Wahira & Tolla, 2023). The current curriculum is judged with regard to the aims, learning outcomes and the expected graduate competencies in connection with the stakeholder requirement and expectations. If this phase could show that there are some significant disparity of the above-mentioned details in the curriculum, it will aid as a foundation for continuing with following activities of the curriculum development process (Seels & Glasgow, 1998; Rusdi, Sirajuddin, & Alfah, 2022).

## Stage 2: Environmental scanning

The success of the accomplishment of the subsequent phases of the curriculum development process depend mainly on the relevance of the environment (Wahira & Tolla, 2023). This principally entails the investigation of the prospects of a particular level of study.

Furthermore it involves the analysis of the current standards of the department and programmes regarding their alignment with the standards of a particular profession. Additionally, it is very crucial to realise the level required by the accreditation bodies, the requirements in the upcoming curriculum and investigate the best practice from other institutions which are offering the same curriculum (Seels & Glasgow, 1998; Rusdi, Sirajuddin, & Alfah, 2022).

## Stage 3: Identifying the key stakeholders

During this stage, the developers are to identify the stakeholders who are expected to participate in the process. These are the people who are experts in the programme which is being developed. In the sector of technical and vocational education it should be the people from the industry and lecturers (Wahira & Tolla, 2023). It is very crucial to identify these people because their input will help in the production of a curriculum which is relevant to the needs of the employer and thus increase the employability of the graduates (Seels & Glasgow, 1998; Rusdi, Sirajuddin, & Alfah, 2022).

Identification of the stakeholders also helps the developers such that those who are identified can also help in further identification of some more experts in the area. A large industry base will further increase the attainment of quality curriculum. After the receiving of the list of the programme experts, they are validated basing on their qualifications and categorized according to their area of specialty with that, they form various groups according to their specialty areas. This will include both the internal and external stakeholders (Wahira & Tolla, 2023).



#### Stage 4: Identification of the requirements

The completion of the selection of stakeholders the identification of the requirements stage commences. Stakeholders' aid in deciding the main proficiencies, effective implementation of the activities is very crucial regarding the achievement of the curriculum development process (Seels & Glasgow, 1998; Rusdi, Sirajuddin, & Alfah, 2022). Different ways can be used to analyze the requirements. The data collected depends on the type of tool used to collect the information. It is recommended that the method of triangulation be used as it will help in collecting information that is inclusive and sufficient. Different methods of data collection such as interviews, questionnaires, case study and task analysis can be used (Wahira & Tolla, 2023).

#### Stage 5: Internal capacity analysis

This phase deals with the development of a broad synopsis of both human and physical resources available. This examines the availability of the lecturers, their proficiency and capability, how much they are engaged (Wahira & Tolla, 2023). For the physical resources the analysis checks whether the organization is capable of handling the curriculum in terms of the infrastructure and technical know-how (Seels & Glasgow, 1998; Rusdi, Sirajuddin, & Alfah, 2022).

#### Stage 6: Assessment of feasibility

This stage involves testing whether the curriculum developed would produce the expected results. A series of activities are carried out. These activities check whether the curriculum is feasible and if the prospective learners would gain good results. Moreover if it will be financially sustainable to implement it. This stage further examines the feasibility of both the human and physical resources which were established in the previous stage. It also assess the educational level of the teaching staff and if they are capacitated enough to offer the curriculum (Seels & Glasgow, 1998; Rusdi, Sirajuddin, & Alfah, 2022).

This phase involves the identification of the problem. This helps in giving a clear indication of how and what is expected to happen during the process (Peterson, 2003; Rusdi, Sirajuddin, & Alfah, 2022). The process of scanning the environment is also significant because a relevant environment would enhance the success of the process. The crucial role played by relevant stakeholders during curriculum development process has been identified. This stage has discussed how they should be identified so that the curriculum developed can be beneficial and is of good quality. The phase assumes that stakeholders are vital in the development process of the curriculum as they offer vital information regarding the curriculum being developed. It has also shown the significance of identifying the requirements needed through the use of relevant data collection methods. Furthermore, it provided the importance of analyzing the resources available prior the implementation of the curriculum. Finally, it expressed the significance of testing the practicability of the curriculum developed. This included checking whether all the materials required to offer the programme are in place.

#### Phase 2: The design phase

This process include significant aspects. Firstly, the developer conducts a research and planning is carried out throughout the stage. In the planning stage, the curriculum developer establishes the objectives and the ways of how the objectives will be achieved (Peterson, 2003; Rusdi, Sirajuddin, & Alfah, 2022). These include the teaching strategies that are going to be used in order to satisfy the objectives and the teaching aids that will be used during delivery (Peterson, 2003; Rusdi, Sirajuddin, & Alfah, 2022). During this phase, the developer should take in to consideration the data collected during the analysis phase because if care is not taken, it may result in the duplication of efforts during the process of implementation. It is important to plan thoroughly during the analysis and the designer phase; this would reduce further the requirements for research and planning in the future. Secondly, during the design process it is very crucial to consider assessment very thoroughly as an important aspect of instructional plan

(Wahira & Tolla, 2023). The instructional plan influences how the objectives will be tested and the kind of tests that will be used before delivery. The test should be aligned and expressive of the objectives Peterson (2003) further emphasised that, tests should also satisfy the other constituents of the plan.

During the alignment of the goals and the objectives, curriculum developers go back to the analysis phase for the pre-requisite information about the learner's behaviours and previous knowledge. This information will help the lecturers and the developers on the appropriateness of teaching methods. Non-alignment of the objectives and the assessment may have detrimental effects on the learner (Wahira & Tolla, 2023). Wrong assessment may lead to the learners no longer being interested in the programme and may compromise the quality of instruction (Peterson, 2003; Rusdi, Sirajuddin, & Alfah, 2022). This can eventually affect the enrolment of the learners in the programme. The curriculum designers who refer to the analysis phase and prudently choose the assessment techniques that consists of various strategies, are more likely to engage the learners. Doing so, enhances learner motivation in the course and make them to participate more in the programme. This yield positive results for the programme in terms of enrolment and the leaner satisfaction (Wahira & Tolla, 2023).

This phase is very crucial during curriculum development because the assessments being developed are meant to serve as a benchmark of how much the learner has mastered the content. Conducting a research in this phase is vital because the results of the findings will ensure what is needed and not needed in the curriculum being designed. Finally, the alignment of the assessments with the objectives cannot be overemphasised.

### Phase 3: The Development process

After the completion of the analysis and the design phases the researcher, planner and the developer assumes the role of the producer. This process involves the drafting, production and evaluation. Furthermore it emphasise on the development of formative assessments from

the selected resources and media identified in the previous stage of analysis (Seels & Glasgow, 1998; Rusdi, Sirajuddin, & Alfah, 2022). Evaluation in this stage checks the formative assessments developed whether they meet the required quality standards. The formative assessments developers will determine whether the product will be of benefit to the learner and come up with ways for future improvement (Peterson, 2003; Rusdi, Sirajuddin, & Alfah, 2022).

#### Phase 4: Implementation stage

The implementation phase is very crucial in the curriculum development process as is the process, which informs the developer whether the product developed is feasible. The process also involves the continuous examination, restructuring and improvement of the product (Seels & Glasgow, 1998; Rusdi, Sirajuddin, & Alfah, 2022). If the developers do not carry out these processes, and become inactive, the implementation process may fail to produce what was aimed at. It is required that evaluation process be carried out during this stage because it will check whether the product is performing as it is expected (Peterson, 2003; Rusdi, Sirajuddin, & Alfah, 2022).

#### Phase 5: Evaluation stage

This stage is very significant in the model of ADDIE. It occurs in the development stage with the use of the formative assessments and all the way to the implementation stage with the assistance of the learners and lecturers and later at the completion stage in the form of the summative assessments (Seels & Glasgow, 1998; Rusdi, Sirajuddin, & Alfah, 2022). The assessments assist in providing feedback on the quality of the programme. During the evaluation stage, the developer should establish whether the problem has been attended to or not (Wahira & Tolla, 2023). The relevance of the programme should also be identified. This process checks for mastery of the objectives and the effect of the programme and if there are any changes that are required in the future concerning the programme (Peterson, 2003; Rusdi, Sirajuddin, & Alfah, 2022). Evaluation is vital for the continuation of the relevance of the

programme to the products of the curriculum. It will further ensure that, the graduates are relevant to the needs of the society and the nation as a whole.

The significance of a relevant curriculum development framework and its benefits to the education sector in any nation has been discussed. The study also has discussed the background of curriculum development and the policies that influenced curriculum development in Botswana. The curriculum development framework of the ADDIE and its benefits to the education sector was investigated. The ADDIE was seen as a suitable model because it actively involves the stakeholders during curriculum development process.

### **2.15. Factors considered for the development of a Quality Technical Vocational Education Curriculum.**

Technical education as one of the sectors of education in the higher levels of education, plays a pivotal role in the development of the country's economic, political and its socio economic status. It equips the youth with entrepreneurial skills, and impart them with life skills so that that they can create jobs, (Shafi, Neyestani, Jafari, & Taghvaei, 2021). The objectives of vocational education in Botswana are to empower learners with job creation skills and equip them with skills for employment. The technical vocational education training (TVET) sector was developed to close the gaps in shortage of skilled labour. Nyerere (2009) concurred that, vocational education is vital because it equips people with knowledge and employment skills and thus make them to be productive and accessible to job prospects (Wahira & Tolla, 2023). The forums and conferences such as the Paris international Conference and the Seoul Conference in 1999 on sustainable development, have credited the importance of the TVET sector in the development of the human capital and financial capital. It is acknowledged that, TVET is a vital tool that empowers nations to accomplish the sustainable development goals, creates employment and improve quality of life (Olori & Olori, 2018). To achieve the sustainability of the nations in terms of socio economic and political, there is a need for quality

education. The quality education can be achieved through the development of a technical and vocational education curriculum which is geared towards the achievement of the sustainable goals. To concur with the above, Shafi, Neyestani, Jafari & Taghvaei (2021) posited that, the curriculum of TVET have an impact on how the sector responds to the changing dynamics of the global world.

### ***2.15.1. Sustainable Development Goals.***

An intergovernmental agreement and "plan of action for people, planet, and prosperity," The 2030 Agenda for Sustainable Development consists of 17 Sustainable Development Goals (SDGs) that "balance the three dimensions of the scope and ambition of the new global Agenda by focusing on viable improvement: the economic, social, and environmental aspects (UNESCO, 2015). The goal that will be discussed in this report is sustainable development goal 4 which states that, "Education is central to the realization of the 2030 Agenda for Sustainable Development. Within the comprehensive 2030 Agenda for Sustainable Development, education is essentially articulated as a stand-alone goal (SDG4) with its seven (7) outcome targets and 3 means of implementation" (UNESCO, 2015). The main aim of the goal is quality education which is geared towards promotion of a fair and inclusive quality education and encourages lifelong learning for everybody. To ensure prudent implementation and achievement, the goal operates with three underlying principles which are;

Firstly, Education is a fundamental human right and an enabling right. Education is a human right which is regarded as a crucial tool that empowers, as such, nations should ensure that all people are provided with quality education which will produce a well-rounded individual.

Secondly education is regarded as a public good: the primary role of any nation is to ensure that it upholds and implement the right to quality education. As a shared communal enterprise, it entails an inclusive process of public policy creation and execution. The

stakeholders (both internal and external in the education sector) both have a significant role to play in order to realize the achievement of high quality education. The nation has to establish and enforce rules and norms to the development of quality education.

Thirdly, this principle focuses on the right education for all. It states that, the right to Education for All people is inextricably tied to gender equality. In order to achieve gender equality, a rights-based strategy is needed that guarantees that both girls and boys, women and men, have equitable access to and completion of education cycles, as well as empowerment in and via education (UNESCO, 2015).

The SDG 4 goal emphasises that nations should ensure that all people are provided with quality education. Concerning technical and vocational education it is very important for the sector to ensure that it offers the consumers high quality education which is custom-made to the industry ensuring that, professional principles and competencies are linked to the employer's needs. It suggests that the teaching and assessment modes should be relevant and learner centered. This is significant in TVET because the sector plays a vital role in the development of the economy and prosperity of the community as a whole. (Shafi, Neyestani, Jafari, & Taghvaei, 2021).

## ***2. 15.2. Technical Vocational Education as a crucial tool for Sustainable Development.***

A sustainable educational programme is a programme with objectives focused on achieving citizen economic empowerment. It is necessary for the aims of sustainable development goals to be achieved, in order to gain the required knowledge. Technical and vocational education sectors focus is to prepare students for the acquisition of skills, the growth of the economy and the emancipation of residents from poverty (Nwosu & Monday, 2017).

Technical and vocational education is a real tool for achieving sustainable development, not merely on a national scale but also internationally, based on its goals and objectives. This is due to the focus that both technical vocational education and Sustainable Development

emphasises more on personal and economic progress, which ultimately contribute to the well-being of people as a whole (Nwosu & Monday, 2017)

In many nations, vocational and technical education has proven to be a crucial component of national policy reforms, because of the effects it has on the development of human resources, competitiveness, and economic growth. It is very instrumental in the national development of many nations (Kehinde & Adewuyi, 2015) in (Nwosu & Monday, 2017) . Similarly, Vijay (2017) asserts that technical education plays a significant part in the growth of the economies of developing nations by producing qualified labor that is in line with the demands of business, society, and the international community in its entirety.

### ***2.15.3. Current ideas on Higher Education.***

Different scholars had advocated a variety of models for higher education quality curriculum development. For example, Knight (2001) suggested that there should be coherence in a curriculum. He reverted to Bruner's' idea of the spiral curriculum which portrayed a quality curriculum as a coil of recurring actions to develop and extend abilities, ideas, approaches standards, and spread their reach. Bruner claimed that, the spiral curriculum has consistency, coherence and advances in the implementation period and in the end product of the curriculum which is the graduate (Howard, 2007). Knight (2001) voiced that, Bruner further contended that, "a good curriculum would plan for learning to take place through communities of practice in which group work and peer evaluation are normal, interpersonal contact is common and networks of engagement are extensive".

On the one hand, scholars from the United Kingdom, went beyond the idea of curriculum as a process or a product. They proposed a curriculum model that consists of three spheres; that is knowledge, action and self. They viewed the knowledge aspect as comprising of the discipline relevant specific knowledge, the action as comprising of the required knowledge of the discipline. The self-component align oneself with the discipline's



competencies. Furthermore, in their argument, they contended that, the weighting and integration of the three domains vary based on the subject matter, and varied patterns of integration should be taken into consideration while developing curricula (Barnett, Parry, & Coate, 2001).

On a different note, Parker (2003) argued that, for quality curriculum to be realized, the Barnett, Parry & Coate (2001) model of knowledge, action and self should be extended to the interaction of the three spheres. He advocated for a transformational curriculum which states that students should create their own interactive knowledge, action, and self-aspects. He believed that a curriculum which is transformative would enthrall the learner's passion of knowledge and thus motivate the facilitators, moreover, it would cultivate a matured analytical self that would integrate the Barnett value of handling high order complicated concepts. Furthermore, it would employed the ability to invest oneself while recognizing one's value systems. This method of curriculum development is centered on metacognitive knowledge, self-direction, and change (Parker, 2003).

#### ***2.15.4. Theory versus Practical Curriculum.***

The models discussed previously are mainly theoretical and lack the practical aspect. The TVET sector curriculum requires the practical approaches. For that, Fink (2007) suggested a practical model of Integrated Course Design. The model embraces the three concepts of education which are the learning goals, teaching and learning activities and assessment and or feedback. The learning goals ascertain what we require the learners to learn, the learning activities shows methods of learning and the assessment and or feedback shows the extent to which the learners have mastered the content or have achieved the envisioned goals (Fink, 2007). Integration of the triad of education is very critical in developing curriculum. This is so because it will increase the engagement of the learners during implementation and thus encourage Education for Sustainable Development (ESD) during instruction and at all levels

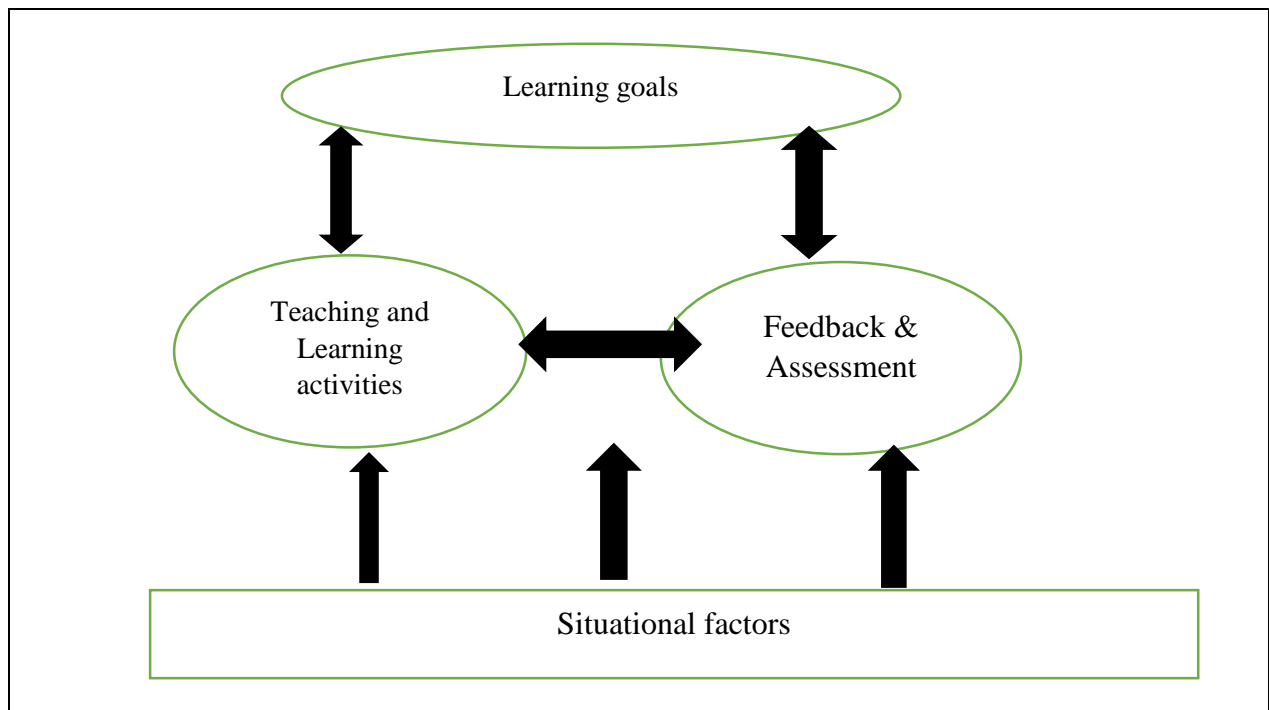
of education. Moreover, it will increase the engagement of learners and their obligation towards ESD goal (Igberaharra, 2021)

a. The Integrated Course Design

The Integrated Course Design method advocates that, instead of simply developing a tilt of themes in a programme, and bombard the learners with loads of material about each theme; there is a need to develop the programmes that are student centered, logical and integrated. In doing so, the learners will be more engaged, responsive and achieve what they are expected to learn with ease.

**Figure 11**

*The model of integrated course design*



a. Situational factors

This model states that, the situation always varies when teaching take place; as such, there is a need to collect data about a number of issues: these are,

- i. Specific context: this employs the following factors, the target group, course level, time frame and the mode of teaching, either physical or online.

- ii. Other people's expectations: whether the programme is expected to satisfy the objectives of the department or the college
- iii. The nature of the subject: This is the programme convergent or divergent. For example, convergent programme such as sciences require a single answer while on the other hand the humanities require different analyses.
- iv. Caliber of the learners: their views about the programme and their previous knowledge and experiences they offer in relation to the programme they are to study,
- v. Caliber of the teacher: this factor seeks to find out the values of the teacher in relation to the subject and how it correlates with that of the learners.

The data that is collected after the analysis of the situation plays a significant role in giving a direction on how the programme is going to be delivered.

a. Learning goals

To achieve quality in a student centered learning environment, there are a number of factors that should be considered; there is a need for formulation of objectives that can motivate the learners. That is, inspirational and motivational goals should be considered. This can be done through the taxonomy of significant learning. The taxonomy of significant learning provides six (6) learning goals which focus on in any programme. Below are the six levels of taxonomy of significant learning as advocated by Fink (2007).

- i. Understand and remember the main foundational knowledge of the programme. That is the terminology, theories and the relationships.
- ii. Apply the foundational knowledge to the concepts under study. For example in TVET, students can use the content they already know during their practical lessons like operating equipment in the workshops.

- iii. This level requires the learners to be able to relate the content they learnt in one subject area to other subjects that they are studying. This is integration. This is critical in interdisciplinary learning.
- iv. The learners should be able to realize how learning the programme is going to impact themselves, their interpersonal skills and the society as a whole
- v. Will the learners realize the worth of the subject and have an interest in furthering their career in the subject are?
- vi. Will the subject motivate the learner to be inspired further to find more about the subject area considering that the curriculum does cover all that is matter about a subject?

The principle behind this is that, during curriculum development process, if the programme can address the six levels, then it will indorse quality and produce a well-rounded graduate who will be able to integrate what he has learnt to all areas of his life. It is very important that curriculum developers learn to develop significant learning into the programmes. This is the main idea behind the Integrated Course Design model (Fink, 2007).

#### b. Learning Activities

After the formulation of the learning objectives there is a need for the identification of the teaching and learning methods. These teaching methods should be aligned with the learning activities so the learners could easily achieve the learning goals. The teaching methods should be engaging. This can be achieved using influential teaching methods. Fink (2007) adapted a model of Holistic Active Learning, which postures that;

- i. Learners require knowledge and ideas. It encourages that learners should study independently after the lectures.
- ii. They can learn through observation, and experiential learning, problem solving and decision-making exercises and role-plays.

- iii.** Students can also learn through reflecting on what they have learnt through portfolios or writing journals (Fink, 2007).

It is central that during teaching and learning, these learning activities are infused in the programme of study.

**c. Feedback and assessment**

During curriculum development, it is very crucial to lay out how the assessment and feedback is going to be carried out. Assessment and feedback inform us whether the learners have achieved the intended learning objectives or not. The concept of educative assessment informs the curriculum developers' measures what is expected to measure. It poses that, a well-developed assessment does not only provide a basis for grading it is also informative. To achieve that, the following significant elements should be included:

- i.** Realistic activities: A part of the appraisal needs to find out if the learners have understood and retained the content and whether they can be able to apply what they have learnt either in their professional or personal life.
- ii.** Clear criteria and standards: When assessing complex mastery, the criteria and standards should be clear.
- iii.** Prospects for self-assessment. The learners can be given opportunities for self-evaluation when they are still in college so that they have an idea of how they perform after they had completed their programme.
- iv.** Feedback should be frequent, immediate, discriminating and loving (Fink, 2007). .

The essence of technical and vocational education is to produce market ready graduates who are motivated to work in their respective career paths. To achieve this, there is a need for high quality education that will enable them to acquire personal, social and professional skills. This quality education can be achieved through the development of more engaging courses that are integrated with noteworthy learning objectives.

### **2.15.5. Curriculum Coherence.**

Curriculum coherence refers to the synchronization of knowledge or learning standards from international and national standards to local classroom settings in terms of the objectives, subject matter, and method of instruction evaluation (McPhail, 2021; Rata, 2021). Some descriptions emphasise the internal consistency between what is taught, learnt, and assessed in classroom procedures and what the desired academic standards are. The several components of education and teaching are also included, comprising assessment, standardized tests, books, exercises, session plans, teaching strategies, and in-service programmes for lecturers (Rata, 2021). The assumption is that the stronger the curriculum coherence, the higher the instructional quality (Biggs, 1999).

#### **a. Importance of curriculum coherence.**

Curriculum writers argue that, regardless of the theoretical viewpoint or practical perspective, they underscore the significance of curricular coherence. The premise is fundamental and reflects back to Bruner and others who came before him, who advocated repeatedly going over significant concepts to foster transfer and enhance understanding (Rata, 2021). At the university level, where there are broad areas of study that include a number of courses, developers have the chance to create a comprehensive curriculum. Such a program is not required to follow a traditional progression. It might be a problem or issue-based, with students exploring more deeply into key ideas and concepts (Rata & McPhail, 2020). Curriculum developers are in a position to develop a sequence of courses in whatever format that are thoughtfully planned to advance the fundamental know-how and abilities of the fields of study, In order to enable learners to deepen and widen their understanding as they move through them. Although the concept is straight forward, the work is challenging (Howard, 2007).

Curricular development has taken a center stage in recent years in both national and worldwide. Not to mention, legislators have turned to curriculum in their efforts to raise educational systems' and schools' performance and goal attainment (Rata, 2021). A global policy movement has arisen around the design of curricula that focus on standards and results. Additionally, the development of curriculums that emphasise upon requirements and outcomes, with the drive to improve educational activities and instruction to better match with the existing national and international outcome measurements and quality indicators (Sundberg, 2022).

A study in Finland National curriculum reform that explored curriculum coherence as perceived by the stakeholders in curriculum development asserted that; effective education transformation depends on the coherence of the curriculum. The research data revealed that, there are three components that make up a coherent curricula. Those are; consistency with of the intended direction, an integrative approach to teaching and learning and an alignment between the objectives, content and assessments (Sullanmaa, Pyhältö, Pietarinen, & Soini, 2019). These components of coherence resonates well with the model of Integrated Course Design. Furthermore, the research outcomes demonstrated that curricular coherence add to the anticipated impact of the transformation on the growth of the institutions. The study extends the body of knowledge on curriculum development by demonstrating that curriculum coherence is a key factor in the reform's success at the institutional level and by proposing a scale for assessing views of coherence in the context of extensive national educational reform (Sullanmaa, Pyhältö, Pietarinen, & Soini, 2019).

In summary if courses are developed in a student centered, coherent and integrated manner in technical and vocational education, the sector will produce the products that will lead to the sustainable growth and development of Botswana. That is, it will improve the image of technical and vocational education; furthermore, a coherent and integrated curriculum would improve the relevance and competitiveness of the programmes.

### **2.15.6. *Quality Curriculum.***

The argument that national curricula should reflect the changes happening outside of the classroom has received a lot of attention internationally. This raises challenges about what a high-quality curriculum in the technology era should resemble, as well as difficult questions regarding how to implement the reforms in education that are required for such a curriculum to be achieved. The TVET sector is faced with a mammoth task of the technological changes and social reforms. The effect of digital technologies in particular has increased the demand for higher order skills, abilities, and knowledge because of these transitions (OECD, 2019 ). The educational system has the responsibility in this global setting to not only provide students with the new, higher-order abilities and competences that are in demand, but also to get them ready for a future where the talents and knowledge they'll need to succeed are continually evolving. (Twining, et al., 2021). In the quest to overcome these challenges many nations are redesigning their curricula in order to prepare their youth for the current and the future changes.

#### **a. Factors to ensure quality and alignment**

The process of aligning and developing curricula involves numerous parties. There are three key issues that ensure alignment and link with each other to ensure quality curriculum; those are the stakeholders' involvement, teacher professionalism and summative assessments (Twining, et al., 2021).

#### **i. Stakeholder involvement**

The stakeholders should be included in a timely and genuine manner to ensure engagement and involvement, even though they may have different beliefs and interests in respect to the curriculum; in terms of broadening the curriculum (Belita, Carter, & Bryant-Lukosius, 2020). Alignment is a cyclical process with a wide range of stakeholders and participants, during which the reasons for changing the curriculum are identified, ideas are



developed for programs and materials, and efforts are made to implement the changes in actual practice (Twining, et al., 2021).

ii. Teacher professionalism

Lecturers play a crucial role in the implementation of any curriculum reform. Curriculum implementation calls for more than just teacher 'buy in'; it also calls for an understanding of what it takes for the teaching profession to take ownership of any new curriculum or curriculum innovation (Kilag, Marquita, & Laurente, 2023). When looking at the educational system as a whole, in order to ensure that the desired curriculum goals are actually accomplished in practice, the question is how to harness and build on the expertise of lecturers so that they become invested in and genuinely participate in curriculum change (Twining, et al., 2021).

iii. Summative assessments

Summative evaluation is key for certification and selection processes. How to evaluate the important competencies and dispositions that go along with the information is currently the difficult part (Ishaq, Rana, & Zin, 2020). New summative assessment formats that complement existing ones and are consistent with educational goals must be created (El-Awaisi, Jaam, Wilby, & Wilbur, 2022). While attaining this will strengthen the validity of school evaluation by assessing the things that are significant, it also presents numerous opportunities and problems (Twining, et al., 2021).

In conclusion, developing a high quality curriculum for sustainable development in technical education requires a thorough consideration of an integrated model and the process of curriculum coherence to ensure linkage among the processes. Quality curriculum and its implications to the socio economic and political factors has been discussed. Factors that ensure quality and relevant curriculum had been discussed.

## **2.16. The significance of Curriculum Implementation and Evaluation during Curriculum Development in Technical Vocational Education.**

The curriculum that had been developed need to be put into practice and evaluated after a certain period to check whether it had achieved what it was meant for. To do this there is a need for the inclusion of the curriculum implementation and evaluation plan during the process of curriculum development. Curriculum implementation entails how the learner is going to be assisted on acquiring expertise and knowledge. Planning for curriculum implementation is very crucial because it helps the developer to map a way of how the curriculum will be achieved. It can be seen as a road map that gives direction towards achievement of the curriculum developed.

Curriculum evaluation is also very vital because it helps in reviewing and improving the efficiency of the program. This is how the curriculum developers can identify the strengths and the weaknesses of the programme. It will also help in coming up with new innovative ways concerning the programme. Curriculum evaluation has an impact on the decisions that are taken concerning the programme.

### ***2.16.1. Curriculum Implementation.***

Implementing the curriculum involves putting into effect the officially prescribed curricula, syllabuses, and subjects. The procedure entails assisting the student in gaining knowledge or expertise. It is central to remember that learners are necessary for the implementation of the curriculum. The student is consequently the major figure in the curriculum implementation process. Curriculum implementation is influenced by a number of elements, including the students, lecturers, school environment, culture, and ideologies, as well as instructional supervision and assessment. (Chaudhary, 2015). On a similar view, Ornstein & Hunkins (2009) in Mitchell (2016) added that, curriculum implementation is using the developed curriculum in the classroom. Likewise, implementation stage of the curriculum

development is regarded as the final endpoint for curriculum. Mitchell (2009) further stated that all the stakeholders should be knowledgeable about the implementation of a curriculum and the curriculum developers should be proactive in communication.

Lecturers and other staff members who require knowledge of the curriculum as well as the supporting teaching and learning tools and resources in its implementation must have access to resources and receive in-service professional development training. In a nutshell, this stage is very crucial because it is a stage which will inform the nation as a whole whether the product produced is of the required standard or not. It should be noted that a good quality curriculum can be produced but if its implementation is not clearly articulated the chances for its failure will be very high. In support of the above sentiments, in the a study of effective curriculum implementation: some promising insights, by Hord & Huling-Austin (1986) they said they believed the elementary mathematics was the best as they designed it carefully to realise the needs of the learners. They asserted that, they provided the lecturers with all the materials that were relevant and they provided them with three days of in-service training concerning the new program. Regrettably the report they got from the project coordinator was that it looks like the lecturers seem not to be implementing the program in a way that it was intended to. The big question is what went wrong? Despite a well-developed curriculum implementation was difficult because lecturers were not involved in the development process. The conclusion drawn from that was that:

- i. Lecturers needed more support
- ii. Determine the person accountable for assisting the alterations that instructors will do.

In addition, there is a need for stakeholder involvement in the implementation plan. Stakeholders play a pivotal role as they guide on the direction the implementation should take and also in the decision making (OECD, 2020)

On a different note, Marsh & Willis (2007) Acknowledge that there are difficulties with implementing curriculum, including the necessity of scheduling those in responsibility of doing so for accomplishment, the inconsistency that results from implementation varying from institution to institution, and the reality that there is not a single approach that works for all educators in all settings. It is important to emphasise that implementing a curriculum is a transition phase that might be complicated by a number of elements. Time is required to effectively implement the curriculum and interactions between the people (People based approach) and professional capacitation (Fullan & Pomfret, 1997) in (Mitchell, 2016). They further suggested that, the people based approach can decrease the impact of anxiousness and frequently pinpoint change reluctance. The majority of the time, substantial in-service teacher training is required because it offers the backing required for the change related with teaching or execution of the curriculum which eventually affects the curriculum that is received. Regrettably, training with no absent follow-up, teacher assistance, and additional training sessions would not provide noticeable improvements.

a. Components of the curriculum implementation process

Fullan (2007) suggested three elements of the curriculum implementation process those are;

- i.** Using new resources and curriculums
- ii.** Employing new practices
- iii.** Integrating new principles and attitudes

Furthermore, Fullan (2007) alluded that, the success of the curriculum implementation depends largely on the support that the teacher is getting from all those who are responsible from the Ministry of Education. That is, the support should start with the assistance and direction of subject leaders, vice-principals, and principals at schools, as well as at higher levels like directorates and within the Ministry of Education. Moreover, the support of the supervisors

during curriculum implementation is fundamental because it will motivate the implementers to ensure that the process is successful.

b. Factors that influence the curriculum implementation.

It is very critical to communicate how the innovated curriculum should be implemented during the development phase. There is a need for an implementation plan which is typically defined and concrete. The following are the factors that influence curriculum implementation as alluded by Chaudhary (2015).

i. Teacher

The teacher determines what to offer from the required curriculum or syllabus (Bawani & Mphahlele, 2021). The participation and effect of the teacher in the process of curriculum implementation is undeniable since the process occurs through the interaction between the learner and the intended learning opportunities. While it is clear that lecturers play a crucial role in the execution of the curriculum, it would be very important to find out the role they play in the planning process. It is essential for lecturers to fully comprehend the curriculum document or syllabus in order to implement it in a way that achieves the curriculum's objectives. At this juncture this calls for teacher capacitation to be included in the curriculum implementation plan. Teacher capacitation will help in inducing teacher creativity and innovation and eliminate the anxieties that the teacher might have concerning the curriculum in place. Capacitation will also delete the skeptics that the teacher might have concerning the syllabus because they will be informed and armed to deliver. The teacher as the implementer should play a pivotal role in the planning and development of the curriculum. This is very crucial because it will motivate them to be innovative and be able to apply themselves and thus intensify the motivation and enthusiasm of the learners to learn.

ii. The learners

Similarly important to the implementation of the programme are the learners. Although lecturers decide how lessons are taught in the classroom, it is the students who ultimately transfer and assimilate the material from the official curriculum. The official curriculum and the curriculum that is actually used can differ significantly. Because the learner factor affects how lecturers choose learning experiences, it is important to take into account the varied qualities of learners when implementing the curriculum. For instance, what is actually accomplished in the classroom can depend on student aptitude and family experience. There should be emphasis on the teaching methods that caters for the varied abilities of the learners and their backgrounds. For example in a school environment there are learners with high achievers and low achievers the implementation plan should address all the types of learner

iii. The resource materials and facilities

Experience has taught the educators that, without relevant teaching materials there is no quality teaching and learning that can take place. With those sentiments, it is essential to include relevant resources and facilities in the curriculum implementation plan. This also holds true for the execution of the curriculum. If the government or Ministry of Education desires for the officially designed curriculum to be fully executed as planned, they need to provide schools with sufficient resources. To enable lecturers and students to fulfill their roles in the curriculum implementation process satisfactorily, there must be sufficient learning materials, such as schoolbooks, instruction aids, and stationery. . The availability and quality of resource material and the availability of appropriate facilities have a great influence on curriculum implementation. This calls for governments to adequately fund institutions so that they equip themselves with relevant equipment and laboratories to enable the process of implementation to run smoothly.

#### iv. Interest Groups

In Botswana the interest groups in the technical and vocational education are the industry which is the employer. It is very crucial to include this group in the implementation plan because the learners carry out their work experience modules in their industries. They also can come handy concerning the new technologies and equipment that the institutions cannot afford to purchase. The institutions can deliver some of their modules in which they do not have the equipment in the industry. The following are some ways that industries can assist during implementation:

- a. Provide the institutions with the money they need to buy the necessary supplies.
- b. Call for the addition of specific disciplines to the curriculum.
- c. They can also assist with in-service training for the lecturers if there are new technologies that the instructors are lacking in.

Therefore, it is important to include these groups in the curriculum implementation plan.

#### v. Culture and ideology

Implementation of the curriculum can also be impacted by cultural and ideological differences within a society or nation. Some groups might rebel against an oppressive culture or political philosophy, which would have an impact on how the centrally designed curriculum is taught. To avert this it is very central to involve society during the early phases of curriculum development so that there is no disruption of the implementation phase.

#### vi. Instructional Supervision

It is very important for the implementation plan to include the school administration, particularly the principal. This is so because he is the accountable officer who should ensure that all the necessary requirements are available. The supervision role of the school head should enable curriculum implementation before it can be completed. The principal accomplishes this through deploying employees, allocating time for school topics, providing teaching and

learning resources, and cultivating an environment that promotes effective teaching and learning. In line with this sentiments, Virgillio & Virgillio (1984) opined that, all members of the school staff should be able to contact the principal without restriction. To provide lecturers the chance to successfully implement the curriculum change, he should support an effective staff development program. The principal must also inspire and support faculty members on a regular basis in order to spread the excitement and interest in the new curriculum. The success of the implementation process rests with the school administrator since without his guidance, the new curriculum is frequently ignored.

During the process of curriculum implementation the principal should ensure that all the tools that are required for successful implementation such as the schemes of work, session plans and records of work are regularly prepared and up to date. The supervisor should always ensure a culture of diligence, responsibility and friendly all the time. Implementing the curriculum effectively is impossible in a school where the principal is unable to carry out supervision duties.

#### vii. Assessment

Assessment in the form of examinations has a significant impact on how the curriculum is implemented. Schools and communities have historically placed a high value on public examination certificates, thus lecturers have tended to focus primarily on courses that encourage academic excellence. The success of the curriculum's overarching aims and objectives can undoubtedly be impacted by the teacher's conduct. To add more to the above, the significance of assessment in the implementation process cannot be overemphasised. The mastery of the curriculum is tested through assessment. It is apparent that during the implementation process assessments are accorded the gravity that it deserves. Improper assessment processes can give the results which are not reliable.



### ***2.16.2. Technical and Vocational Education Stakeholder's involvement in Curriculum Implementation.***

Graduates of technical education in Botswana continue to face challenges of being absorbed in the labour market. The industry personnel decry of incompetent graduates. This might be an indication that the industry personnel as stakeholders are not fully engaged in curriculum implementation and non-inclusion of the stakeholders compromised the quality of implementation.

#### **i. Lecturer's as curriculum implementers**

The preparation and involvement of lecturers as facilitators of the curriculum implementation process is a necessary component of curriculum implementation (Bawani & Mphahlele, 2021). One important aspect of the implementation process is how implementing agents learn about their activity, possibly resulting in a change in their views and mindsets (Spillane, Reiser, & Reimer, 2002). To add more, Spillane, Reiser & Reimer (2002) sentimented that, In light of this, curriculum implementers (such as VET instructors or instructors) must first notice, then structure, interpret, and generate meaning. Furthermore, they stressed that agents of curriculum implementation whether at national level or institutional level should have the same understanding of the demands of the national curriculum. This in turn recommends that the implementing agents should communicate and work together. Acknowledging that there should be collaboration between the implementing agents and Curriculum developers.

In a similar vein, Handal & Herrington (2003) contended that teacher beliefs serve as affective and cognitive filters within which new information and expertise are understood, in addition to representing underlying inferences of curriculum. The manner in which the new curriculum was communicated to the agents of implementation will determine whether or not they interact with or reject it on a given stage (Louis, Febey, & Schroeder, 2005). They further

posited that when lecturers are engaged, they become motivated during implementation. On the other hand they advanced that, how instructors respond to curriculum implementation will depend on whether they embrace the change strongly, make some minor alterations over time, or not conform to it (Louis, Febey, & Schroeder, 2005). Nevertheless, the implication is that if the views, values, and cultures of the lecturers or lecturers differ from the values underlying the curriculum, there may be a tendency to affect how successfully the implementation is carried out.

While assessing if new knowledge is compatible or discordant with what they already know, lecturers employ cognitive processes (Spillane, Reiser, & Reimer, 2002; Louis, Febey, & Schroeder, 2005).in (Msibi, 2021). Furthermore, to facilitate change and avoid dissonance, any deviation from the norm must be communicated rather than imposed on the lecturers. While examining how prior knowledge affects change, it is important to keep in mind how context and culture act as circumstances that mediate change.

#### ii. Stakeholders' involvement as curriculum implementers

The process of implementing the curriculum involves the school facilitating communication between the curriculum and the learner (Mufanechiya, 2015). After going through a rigorous development process, the curriculum is put into action during the implementation phase. Considering the strategic purpose of curriculum implementation, it is considered as a repeating activity that entails the effective and efficient execution of predetermined courses. The iterative activities that are incorporated into the curriculum development process serve as the foundation that curriculum implementation is a recurring process (Matkovic, Tumbas, Sakal, & Pavličević, 2014)

Any educational institution, from a school to a Technical Vocational Education and Training (TVET) programme to a university, must follow a specific pathway for curriculum implementation. If the institution in question is a government organization, this path should be

outlined in the government's educational policy. In Botswana the Botswana National Policy on Vocational Education and Training of 1997 is the major source of curriculum pathway. It specifies that, vocational education should address the needs of the learner and the industry. The policy established a collaborative foundation among different stakeholders. For this priority to be achieved, The TVET institutions should be aware of the demands of the industry if the curriculum is to answer those needs, and this can only occur if the industry participates in the curriculum development procedures.

In the absence of this, TVET institutions may very well provide students with a curriculum that is not in line with the demands of the sector, which could further lead to graduates who are jobless or incapable of finding employment. The Botswana Education and Training Sector Strategic plan of 2015 compels technical vocational education and training colleges to create an innovative curriculum and guarantee that curriculum development is entrenched, with the long-standing dimensions to constantly update and advance the quality of courses.

The goal of integrating stakeholders in curriculum and education issues is to raise the standard of the educational system. Due to their significant experience, stakeholders are frequently involved in curriculum matters so that the curriculum can be shaped to effectively meet the needs of both society and industry (Yaro, Arshad, & Salleh, 2016). Additionally, curriculum stakeholders can be extremely important in the construction of curricula since they would offer suggestions, feedback, criticism, and guidance (Matkovic, Tumbas, Sakal, & Pavličević, 2014). Koskei (2015) contended that, stakeholders ought to be engaged throughout the curriculum development process. While the above sentiments are relevant. This section will discuss the relevance of stakeholders in the curriculum implementation process.

Curriculum implementation phase is the critical stage of the curriculum development process as its ultimate endpoint is the classroom that entails the interaction numerous with

stakeholder such as learners, lecturers, school supervisors and the society (Olibie, 2014). Msibi (2021) added that some stakeholders in education during curriculum implementation may include “...policy makers, advisors, developers, designers, service staff, and managers” Furthermore she mentioned that these might routinely participate in implementing the programme and be expected to take on certain duties.

#### Case study on the involvement of industry in curriculum implementation

##### South African context

According to a study by Terblanche (2017), TVET colleges now have limited industry participation in areas like student work placements, which left learners stuck for the majority of the time. This makes it more difficult for universities to certify students' ability without actual experience, which raises their frustration. Terblanche (2017) added that the unwillingness of the sectors to accept TVET apprentices and learner ships has an impact on and delays students' ability to achieve qualified tradesperson status. As Terblanche (2017) noted, there is also a lack of industry participation in the process of developing and reviewing curricula, suggesting that the absence of industry cooperation is only one of the issues that have been noted. As a result, the TVET programmes fall short of adequately meeting the needs of the industry sector. It is clear that the TVET curriculum's key players, the industries, are either not being included by the authorities or are refusing to participate of their own volition.

In addition to the existing issue with the industries' lack of responsiveness, which Terblanche (2017) cited as a barrier, Chaudhary (2015) argues that curriculum implementation calls for cooperation. The current study recognizes the existence of numerous more stakeholders in addition to the industry sector, but emphasises the importance of the industry's engagement in TVET curriculum matters. This highlights the value of their input into curriculum creation and the dire implications that would result from their non-engagement.

## **2.17. Curriculum Evaluation.**

The significance of curriculum evaluation in any education sector cannot be overstated. It is pertinent for governments to assess the effectiveness of the curriculum so as to find out whether the programme is still relevant or it meets the needs of the consumers.

The element of evaluation is very critical in the curriculum production process. The major concern is to find out whether the set aims and objectives of the curriculum have been addressed or not (Mitchell, 2016). It is a process of gathering data from which conclusions regarding the value and efficacy of a particular curriculum can be drawn (Yazçayır & Selvi, 2020). To sum up, Kavgaoglu & Alci (2016), “explain the curriculum evaluation as a scientific process containing a range of systematic researches focused on the efficiency of an applied curriculum, integrated data collection, analysis, comparison, decision-making and judgment making practices.

### ***2.17.1. Purpose of Curriculum Evaluation.***

Education equips the next generation to assume their rightful place in the society. It becomes crucial that inadequate educational objectives, resources, and teaching strategies are not preserved but updated in accordance with due to developments in the social, cultural, and scientific fields. It is crucial to understand how various educational settings and circumstances interpret a given or mandated curriculum. Thus, there is a requirement for curricula evaluation (Bharvad, 2010).he further added that the process of curriculum evaluation is required for the monitoring and reporting on the education quality. Moreover he, identified three different decision categories that evaluation is utilized for. Those are as follows:

- i. Course improvement

Determining which educational materials and practices are effective and what needs to be changed.

ii. Decisions about individuals

Assessing the student's needs for lesson planning and categorization, and making the student aware of his own shortcomings.

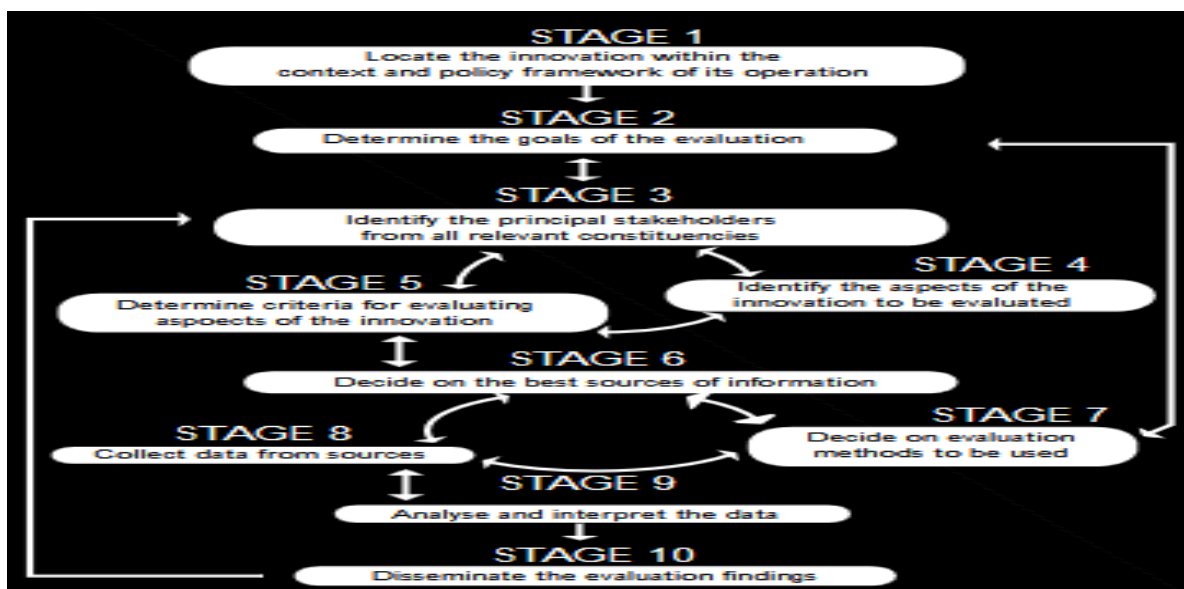
iii. Administrative regulations

Evaluating the effectiveness of the educational system and the lecturers themselves. The aim should be to address queries about the choice, reception, endorsement, and value of educational resources and exercises. It aids in determining the essential enhancements to be included in the subject in terms of methods of teaching, classrooms, employee selection and the creation of learning goals. Moreover, curriculum evaluation provides the community, policy makers and school managers with the knowledge concerning the operations of the education system (Bharvad, 2010).

### 2.17.2. The stages of Evaluation.

The model of evaluation below was developed by (Jacobs, 2000). It is a ten stage model which the stages are presented in a sequence. The sequence determines the objectives of the evaluation.

**Figure 12**  
*The ten stage model of evaluation*



### Stage 1

In this phase, the innovation under evaluation is situated within the operational context and regulatory framework. In order to properly comprehend the various variables that have an impact on creative practices, this stage is crucial at the beginning of the review process (Jacobs, 2000).

### Stage 2

This stage suggests the aims of the evaluation process. Typically, the source requesting the evaluation sets the objectives. The majority of assessments are either internal with formative objectives with an improvement focus or external with summative objectives and with an accountability focus. While designing an evaluation framework, the model advises innovative evaluators to take an eclectic approach by combining formative, summative, and illuminative purpose (Jacobs, 2000).

### Stage 3

The key players from each department in the institution are identified at this stage. Learners, teaching staff, administrative support services, and regulators make up the four major categories that make up a higher education institution's major stakeholders.

### Stage 4

The innovation's components that need to be examined are identified at this stage. Several stakeholders should be involved in the decision-making process to identify these features because doing so give them some degree of control over the evaluation activity's nature (Jacobs, 2000).

### Stage 5

In this stage, the evaluation standards for the aspects of the invention that were identified in the previous stage are established. The features of a given innovation and the unique setting in which it operates greatly influence the criteria for evaluating educational

innovations. Criteria should be adjusted as necessary to fit the demands of the particular evaluation study.

#### Stage 6

Using the criteria established at Stage 5, the evaluator selects the best information sources for assessing the numerous components of the invention. There ought to be interaction among Stages 5 and 6 as the one reshapes and feeds the other, since criteria may need to be re-assessed depending on the sources that are available.

#### Stage 7

The evaluator chooses the evaluation techniques to be applied at this point that are similar to stage 6, an integrative approach is encouraged, but final decisions will depend on a number of factors, including the kind of invention being assessed, the time and resources allotted to the assessment and the data sources available to the evaluator.

#### Stage 8

In this stage, the evaluation standards for the elements of the invention that were determined at the previous stage are established. The features of a given innovation and the unique setting in which it operates greatly influence the standards used to evaluate educational innovations. The variables should be adjusted in accordance with the needs of the particular evaluation study.

#### Stage 9

The data gathered at the previous stage is analyzed and interpreted by the evaluator. The methods of evaluation chosen at Stage 7 will play a significant role in determining the analysis techniques used. The quantity of responders to a certain instrument, , as well as the evaluation need(s) being met by the data are other factors that influence the analysis and interpretation of the data collected.



## Stage 10

The evaluator distributes the evaluation results at this point. In the event that, the evaluator was unable to consult with all parties involved about the interpretation of the data, due to time and financial restrictions, at this stage, the evaluator should make sure that all parties involved are notified of the assessment findings. This connects stage 10 to stage 3.

The significance of curriculum implementation and the factors that are required for a successful curriculum implementation had been discussed. Literature affirmed that, for a successful implementation of the curriculum to be achieved, all the stakeholders need to be included so as to make informed decisions on how the curriculum should be disseminated and implemented. It is very crucial to evaluate the curriculum at the end to check whether the objectives have been successfully met. The key and most significant aspect in the evaluation model is that all the stakeholders and concerned personnel should be consulted.

## **Summary.**

This literature review has discussed the theoretical framework which had influenced the topic under study. The study was influenced by the constructivist theories of Piaget, Vygotsky and Dewey who believed that learning should be interactive and people learn through their experiences. Concerning classroom activities; they concurred that teaching and learning activities should be learner centered. These philosophies are very critical and should be considered during curriculum development. If considered the curriculum would emphasise more on practical than theory which is a requirement for the department of technical and vocational education and training. The chapter discussed the technical education system of Germany which had played a significant role in the technical and vocational sector of Botswana. It further discussed the technical and vocational systems of other African countries which were under similar colonial system with Botswana. The literature revealed that all the countries technical and vocational system was influenced by the colonisers. The history of

technical education sector of Botswana had been discussed. The discussion included the evolution of the Brigade system, the literature revealed that the Brigades evolved in Phases. As the sector progressed, it birthed the technical colleges in 1987. Policies which governed the technical and vocational sector were developed and commissions of enquiry were set up which stated how technical and vocational should be implemented. Though there were policies which ensured the implementation of TVET, the sector encountered challenges in satisfying the needs of the industry due to the mismatch of the graduates to the need of the country. This mismatch is due to inadequate input of the stakeholders in the activities of technical and vocational education particularly in the development of the curriculum.

The literature further discussed the curriculum alignment of technical vocational education and training and its benefits to the sector of TVET. It revealed that alignment of curriculum is very crucial as learners could use their previous experiences when they transition in to the next level. Furthermore it eases transition from one level to another. The curriculum framework was also discussed. Literature revealed that curriculum framework is very important during the process of curriculum development because it is a blue print which directs the proceedings of the curriculum development process. Three models of curriculum development process were discussed that is the six step model, the Analysis, Design Development Implementation Evaluation (ADDIE) model and the integrated course design (ICD). Curriculum implementation as one major component of the curriculum framework was discussed. This is the stage where pros and cons of the curriculum are discovered. This stage is very crucial as it informs the developers whether the curriculum meets the expectations of the consumer or not. Lastly curriculum evaluation was discussed. The significance of this stage is that it gives feedback about the developed curriculum. Finally the different models of curriculum development, curriculum alignment, curriculum coherence, curriculum implementation and evaluation have been discussed

## **CHAPTER 3: RESEARCH METHODS**

### **3.1 Introduction.**

This chapter will discuss the methodologies, research design data collection and analysis techniques that will be used to investigate quality curriculum development process in technical and vocational education in Botswana. Furthermore, the population and sample, materials/instrumentation of research tools, study procedures, ethical considerations, ethical assurances, and ethics in research shall be discussed. Research methodology is described as the manner in which data is collected and analysed (McMillan & Schumacher, 2001). The research adopted the convergent high breed mixed methodology in order to achieve the study objectives. A qualitative method was used to explore the quality of the curriculum development while the quantitative method measured the involvement of the curriculum implementers in curriculum development.

Three inclusive data collection tools were developed which helped to collect data from the technical and vocational educational lecturers, the Curriculum Developers and Quality Assurance and Assessment officer. One questionnaire had both structured and unstructured questions and this was the major questionnaire which was answered by the lecturers and Quality Assessment and Assurance officer. It included both open and closed ended questionnaires. The questionnaire was used to collect data for the four study objectives. Objective 1: To explore the competency of the technical and vocational education curriculum framework in place: a questionnaire was given to the lecturers in order to understand their perceptions regarding the competency of the curriculum framework in place. Similarly interviews were conducted with the curriculum developers to get their views on the frame work being used. Objective 2: To discover the factors that are required to produce a quality curriculum. Similarly a semi structured questionnaire was distributed to the lecturers and interviews were conducted with the curriculum developers to get their understanding of the

concept of quality curriculum. Objective 3: To investigate how certificate and diploma certificate alignment can be maintained. Similarly the data was collected through conducting interviews with the curriculum developers and distributing questionnaires to the lecturers. This investigated the level of alignment of the certificate and the diploma curriculum. Objective 4: To establish how involvement of stakeholders can benefit the Botswana technical and vocational education curriculum development; a five point likert scale questionnaire was administered to the lecturers to assess the impact of involvement of the lecturers during curriculum development.

The data collected qualitatively was coded and analysed thematically in order to identify the competency of the curriculum framework, identify the factors required in order to develop a quality technical and vocational education and how curriculum alignment between the certificate and diploma levels can be maintained. Finally the data collected from the survey questions was analysed by the use of descriptive statistics to assess the impact of the involvement of the lecturers during curriculum development. In conclusion, the research objectives directed the choice of the research approaches, it ensured an all-inclusive study in to the investigation of a quality technical and vocational education as a key requirement for curriculum development.

### **3.1. Research Approach and Design.**

#### ***3.1.1. Research Design.***

A research design is a blue print or a path of how the researcher intends to carry out the study. Moreover, it is a roadmap of how a research should be carried out and the subject under investigation. It depends on the ontology and epistemology orientation of the investigator and it is in line with the study questions, problem statement, information to be gathered, the methods of data collection and how the research will be achieved (Huntington-Klein, 2021). This entails, the study subjects, the manner in which they will be chosen and the methods of

data collection. Furthermore it includes the data analysis techniques as well as the validity and reliability and the extent to which the researcher can apply the research outcomes to a larger perspective (generalisability) and the way the information is to be scribed and revealed to the partakers of the research (Sileyew, 2019; Grieshaber, 2020). The purpose of the research design is to provide an appropriate plan aimed at the research. The significance of a study design is the decision to be made regarding study method by way of defining the method in which applicable data in the research will be gathered. Conversely, the study design process comprises numerous interconnected choices (Sileyew, 2019).

### ***3.1.2. Research Approach***

This study will employ high breed convergent parallel mixed method approach which is an amalgamation of both qualitative and quantitative approaches in order to achieve the study aims and objectives. The data collected qualitatively supports the quantitative data analysis and findings. The two approaches are used for triangulation purposes. The benefits and flaws of qualitative and quantitative are discussed below:

#### **a. Quantitative approach.**

This research method incorporates a variety of approaches dealing with an organized exploration of a social phenomenon by the use of statistical data or numerical data (Bloomfield & Fisher, 2019). In consequence, quantitative study encompasses, quantification and assumptions that the phenomena which is being studied can be quantified. Data is gathered through quantification, the quantified data is analysed to check trends and relations and to validate the quantification done (Bloomfield & Fisher, 2019).

This approach employs statistical values resulting from observations to expound and define the phenomena that the interpretations can mirror on. It further uses experiential reports as descriptive reports of the situation's actual meaning rather than their necessity and approaches. As well, it engages realistic assessments to determine the degree towards a custom

or standard is achieved by a certain policy or practice. Lastly, quantitative methods are used to investigate the gathered numerical information (Taherdoost, 2022). Quantitative approach further merits broadness, numerical explanations and can be generalized. The central aims of quantitative research methods are impartiality, control, and precise measurement. The approach is logical in nature and use logical reasoning to support or disprove particular theories and hypotheses (Bloomfield & Fisher, 2019).

b. Qualitative approach

Qualitative research is a comprehensive research term which covers an inclusive and extensive phenomena that covers a range of philosophies. It is a research method that allows for an examination of individuals experiences in more depth with the use of specific techniques. The techniques include the interviews, focus group discussions, observations, content analysis, life experiences and visual methods. The outstanding characteristics of qualitative research are that, it permits the researcher to view issues from the point of view of the participant. Moreover it allows the researcher to acknowledge the perceptions and analysis that the participants attach to the way they behave and the occurrences (Hennink, Hutter, & Bailey, 2020). To concur with the above, Rahman (2020) said, “It can refer to research about persons’ lives, lived experiences, behaviors, emotions, and feelings as well as about organizational functioning, social movements, cultural phenomena, and interactions between nations, and concluded that qualitative research is non numerical and it integrates numerous realisms (Rahman, 2020).

This approach is typically defined by inductive methods to knowledge construction strategies that intends to generate meaning. The method is used to investigate; to robustly explore and study the social phenomenon; to scrutinize the understandings that individuals attach to particular behaviors, situations, occasions, relics, and or to cultivate the profundity about a specific feature of life in that society. The principles which informs qualitative research emphasise importance of individuals' perceptual memories and methods of generating meaning

as well as gaining an in-depth comprehension (that is, precise information from a trivial sample). Overall, qualitative research is appropriate when the main goal of the study is to examine, demonstrate, or elucidate (Leavy, 2022).

#### Advantages of qualitative research

The benefit of qualitative research is its capability to come up with a descriptive explanation of how individuals encounter the issue under study (Leedy, 2010). Moreover, Rahman (2020) outlined the following strengths of qualitative research: He alluded that;

Firstly, Qualitative research methods and techniques provides a detailed narrative of the respondents views, feelings, proficiencies and construes the meanings of their behaviours. In his study on language testing, Bachman (1998) established that, the results revealed that, qualitative research outcomes offer a connection of data processing with performance precisely and intensely. Furthermore, the methods are engaged to accomplish perceptiveness in to matters relating to the subject under study

Secondly, qualitative research method provides a holistic understanding of people's experiences in their precise surroundings. That is qualitative research design is a multidisciplinary area that incorporates an extensive scope of hermeneutics opinions, research approaches and interpretive methods of comprehending people's past event (Leavy, 2022).

Thirdly, it is viewed as ethnographical study, a research on a specific case or occasions, and it is capable of understanding the people's diverse opinions, comprehension and occasions, as such, the basis of information in regard with this method is the meaning of dissimilar occasions.

Fourthly, the interpretative design allows the researcher to investigate the respondents' internal experience and find out what influences their values and culture. Fifthly, there is direct contact between the researcher and the participants during data collection when using the methods such as observation, unstructured interviews. The data collected is comprehensive and biased

towards the individual. Finally, the structure of qualitative research is flexible because it can be created and recreated to a higher degree. That is, the systematic and applicable evaluation of a subject can be created by the use of qualitative design. As such the respondents have the autonomy of determining what is congruous for them.

#### Disadvantages of qualitative research

The limitations of the research design are as follows; it is time consuming and the result might be generalized to the entire population. It might be given minimal trustworthiness by the policy makers as compared to the quantitative research.

The differences between qualitative and quantitative research designs are outlined below: (Mehrad & Zangeneh, 2019).

**Table 1**

*Differences between quantitative and qualitative research*

Quantitative research	Qualitative research
Truth is defined by the participants	Truth is defined by the researcher
Self-determining	The researcher is regarded as a communicating observer
Contributions decreased to numerical	All-inclusive perspective
Determination is assumption validation	Purpose is hypothesis generation
Inferential rational	Inductive thinking
Fixed study design	Dynamic study design
Statistical manipulation required	Statistical testing is not mandatory

#### c. Convergent Parallel Mixed method

This approach involves an integration of both qualitative and quantitative data collection and analysis into one study, it can help researchers gain a more complete knowledge of the topic they are studying (Leavy, 2022). Additionally, mixed methods research design



involves integration or combining qualitative and quantitative study and data in a single study (Hafsa, 2019) Qualitative data is obtained from open ended sources without pre-conceived ideas while, quantitative data gotten from close ended data sources (Hafsa, 2019).

Why the mixed method approach?

The rationale behind using the mixed method approach are outlined below: (Tashakkori & Newman, 2010):

- i. Complementarity- combination of two varied data nevertheless correlated answers to a one study enquiry by the use of quantitative and qualitative research designs. .
- ii. Completeness-it ensures an all-inclusive interpretation of the topic under study by incorporating results from quantitative and qualitative exploration.
- iii. Development- to use the start of the research exploration to come up with the questions for the research, information sources and the sampling techniques required for the study in the later phases.
- iv. Expansion- to enlarge the results obtained from the beginning of the research.
- v. Corroboration/confirmation- validation of the quality of assumptions extracted in a one research category inspecting it alongside mixed approaches.
- vi. Compensation- to stabilize the disadvantages of one method using the advantages of the other one.
- vii. Diversity- to evaluate the diverse interpretations of a similar event.

### **3.2. Population and Sample of the Research Study.**

A population in a study is defined as a collection of persons with common traits in which a sample is taken from (Creswell & Plano Clark, 2007). Furthermore, it is a collection of components from which the sample is drawn (Babbie & Mouton, 2005). This is the entire community of which the researcher is concerned in studying. This covers all possible units or components that may be included in the study or all individuals, groups, things, or events out

of which the population sample is selected (Gray, 2004). The study focused entirely on the development of curriculum for the two programmes Hospitality and Tourism and Business Studies in both certificate and Diploma offering institutions. The entire population of the lecturers that are offering Hospitality and Tourism and Business studies in both Diploma and Certificate offering institutions in technical and vocational education institutions will be studied. The study of the entire population is called census. The study used a census because the population is small. The population of this study comprises of forty three (43) Diploma offering lecturers, forty nine (49) Certificate offering lecturers and seven (7) curriculum developers and one (1) Quality Assurance officers.

**Table 2**  
*Sampling table*

<b>Population and sample</b>	<b>Programmes offered in the institutions:</b> The institutions offer a number of programmes mostly at the certificate level; Among others are Construction, Electrical and Engineering and National Craft Certificate programmes		<b>Sampling technique used</b>
<b>Diploma offering</b> 43 (All sampled ) <b>Certificate offering</b> 49 (All sampled) <b>Curriculum developers</b> 7 (All sampled) <b>Quality Assurance Officer</b> 1. <b>Response rate</b> The study had a response rate of 89. <ul style="list-style-type: none"> <li>▪ Diploma 39</li> <li>▪ Certificate 44</li> <li>▪ Curriculum Developers 5</li> <li>▪ Quality Assurance Officer (validation) 1</li> </ul>	Reasons for the use of census The study used a census because the population was small.  These are the only programmes that offer certificate and diploma programmes	<b>Appropriateness</b> The population was appropriate for the study as it covered the entire population of the lecturers offering the programmes and all the curriculum developers of technical and vocational education and the validation officer	<b>Purposive Sampling</b>  For the lecturers of the only two programmes that offer Diploma and Certificate.  <b>Convenience sampling</b> For curriculum developers and Quality Assurance Officer because of their availability and proximity

### ***3.2.1. Research Sample.***

A sample as already alluded above it is drawn from a population. It is a subgroup obtained from a population. The subgroup carries similar characteristics with its population. A process of selection of a sample is regarded as sampling. Sampling is advantageous in research because of the lesser number of people as compared to the entire population.

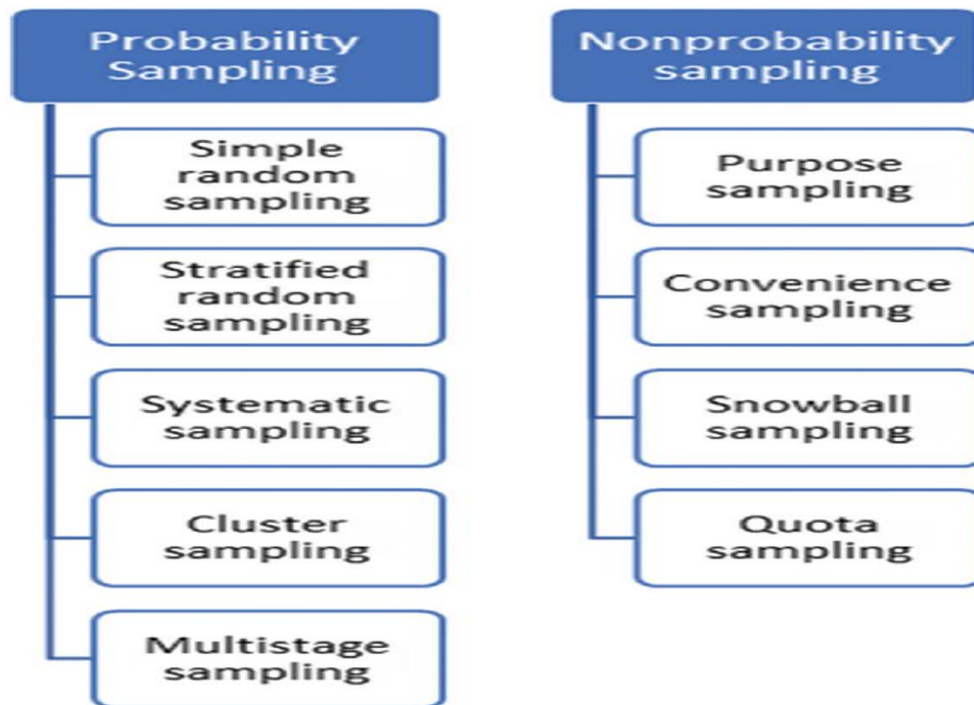
The advantages of a sample.

- i.** It cuts both time and resources and produces findings more quickly.
- ii.** It is possible to compute sampling errors. With that, it aids in collecting data on particular demographic qualities of the population.
- iii.** Because subgroups are small in size, it takes minimal resources and tools during research.
- iv.** It is an ideal method when there is a vast population under study
- v.** As it is carried out by competent and knowledgeable researchers, findings are more reliable (Bhardwaj, 2019).

### ***3.2.2. Sampling Techniques***

Two main types of sampling are used in research. That is probability sampling and non-probability sampling from which are further categorized in to subgroups. The figure below shows the two types and their subdivisions.

**Figure 13**  
*Types of sampling*



a. Probability Sampling

This is a type of sampling where all the individuals in a population stand a chance of being chosen. Types of probability sampling are as follows: simple random sampling, systematic random sampling, stratified random sampling, cluster sampling, multiphase sampling, multistage sampling (Acharya, Prakash, Saxena, & Nigam, 2013). The above types are discussed below:

i. Simple random sampling

In this method of sampling, the probability of being chosen is equal. Tools used during this process of choosing are computer-generated list of numbers or a table with numbers. This process necessitates a group of components that a researcher can use to select a sample from the population (sampling frame). It is essential to count the entire research population, in both a downward and upward order. The benefits of random sampling style are that there is less requirements of the population knowledge, validity is high both internally and externally and

data analysis is easier (Acharya, Prakash, Saxena, & Nigam, 2013). Nevertheless, its limitations are that, it is costly; it requires a sample frame and high number of sampling error and less accuracy.

#### An example of simple random sampling

Supposing there are 100 students in a class and 40 students need to be selected by this method, the sampling frame would be the list of all the 100 students. Those 40 students are going to be chosen by using a series of digits (0 to 9) arranged randomly in rows and columns, (random number table) or a method whereby each member of the population is assigned a number, after which numbers are selected at random (lottery method). In this case when a number is chosen it is removed from the table of numbers generated in an unpredictable, haphazard sequence (random number table). This is known as sampling with no substitute.

#### ii. Systematic random sampling

With regard to this sampling style, the initial participants are chosen randomly, and the choosing of the remaining participants is done sporadically after that. Every  $K^{\text{th}}$  member in a sample is selected; the value  $k$  is computed from the number of participants in the sampling frame divided by the envisioned size of the sample. The first starting point is selected randomly there after every  $K^{\text{th}}$  figure in the list is chosen. The benefits of this sampling technique are; modest consumption, cost effective, high validity both internally and externally, can easily draw a sample and verify it. The down falls are that, the probability selection will be for the participants who have been selected at first. This is so because other participants are chosen without a possibility of being chosen in the following selections.

For example

In a population of 10,000 people the researcher can choose every 50<sup>th</sup> member to make a sample. The sample can be taken at an interval of eight hours (sampling interval). This will be a systematic sample as it is done at intervals.

### iii. Stratified sampling

Data is broken down into different subsections (strata), each of which shares traits including age, gender, racial status, financial status, educational level, and cultural background. From each stratum a random sample is chosen. The advantages of this technique is that, all the required groups have a representation in the population. There is a possibility of an estimation and comparison of the traits in every subsection. It reduces the inconsistency created by systematic sampling. Its constraints include the requirement for accurate information on the scopes of each section and it is costly in terms of forming stratified lists.

### iv. Cluster sampling

In this sampling style the entire population is parted into clusters or bands. Which are typically geographic positions or regions like communities, institutes, constituencies, and blocks. Cluster sampling does better in the survey which involves the entire nation. The selection of clusters is done at random. The sample comprises all the members of the group. Normally a larger sample size is required. If the population is widely spread and it is not easy to sample, and come up with a sample which is representative of the whole population, cluster sampling is ideal.

### v. Multiphase sampling

This is a complicated form of cluster sampling. In this instance, the populace is parted according to categories; these categories are then selected at random, and the participants of these clusters are selected at random, with an equal number selected per group. A percentage of the information is collected from the whole sample and a percentage from the sub-sample. Central to this sampling method is that it intensifies accurateness, less costly, and increases the rate of responses.

vi. Multistage sampling

This is an advanced form of cluster sampling where more than two tiers of components whereby one is nested inside another. The aforementioned entails restating the two fundamental steps of cataloguing and sampling. Normally, the band narrows at every phase, and participant sampling is accomplished at the end.

b. Non- Probability Sampling

These samples are those whereby the chances of the item being chosen are not known. This technique is biased towards the research choosing process. The types of sampling techniques that fall in to this category are convenience sampling, or purposive sampling, quota sampling and snow ball sampling. .

i. Convenience Sampling

The participants are chosen at the convenience of the researcher. Commonly, the participants are selected because they are available at the right time and are chosen because they are present at the appropriate time and place. It is normally used in clinical research because the patient who satisfies the required measures are registered in the experimental. Using this sampling technique is beneficial because it is cost effective and it does not require a register of the entire elements in the populace. Its disadvantage is that, the irregularity and partiality cannot be measured

ii. Quota sampling

This is the technique that assurances that a definite demographic trait will be represented in the exact degree the researcher wants. This method share similar characteristics with stratified sampling in which the populace is divided into clusters or sections, and participants are selected from every group. With the goal of choosing a sample, that is representative or to enable analysis of sub-groups.

### iii. Snowball sampling

In this technique, the first participants are selected by the use of probability or non-probability methods. The identification of the other participants is done through the data which the initial participants had already forwarded. Its advantage is that it is inexpensive, suitable for certain circumstances, and its capability to locate rare communities. The drawbacks include partiality because sampling units are not autonomous as well as the un-justification of projecting results outside the sample (Acharya, Prakash, Saxena, & Nigam, 2013)

In summary, it is very crucial for the research design and approach to be relevant to the topic and objectives of the study. Furthermore, the discussion on quantitative and qualitative approaches have indicated that a combination of the two methods will minimize the weaknesses of each research design and as such the two will complement each other. Any research study should use a reliable and scientifically sound sampling process in order to produce data that is reliable. Probability sampling techniques should ideally be employed to guarantee the sample's representativeness and the generalizability of the findings to the intended audience. If they are not applied, care must be taken when interpreting the study's findings (Acharya, Prakash, Saxena, & Nigam, 2013).

### **3.3. Materials/Instrumentation of research tools.**

Raw data collection is the foundation of any scientific research. There are various data collection instruments that allow for in-depth and detailed investigation of the phenomenon which is being studied. Different data collection tools that have been developed can be used simultaneously in order to augment each other's downfalls. Furthermore, all the data collection tools have flaws and limitations and these shortcomings can be alleviated by the use of mixed method technique which amalgamates approaches that will give better responses to the study questions (Turner, Cardinal, & Burton, 2017)



### **3.3.1. Triangulation.**

The study undertaken has adopted the triangulation of both qualitative and quantitative data collection techniques. Turner, Cardinal, & Burton (2017) described triangulation as an elementary perception of the social sciences whereby, multiple dissimilar methods are used to come up with an improved understanding of the concept under study. Triangulation in research intensifies the reliability and validity of the research results. Reliability refers to the honesty and dependability of the research study while validity, refers to the degree at which the study truthfully shows or assesses the concept under investigation. Through triangulation, there is surety that the biases of the two approaches can be minimized. It further helps in explaining the complicated people conduct with use of the two paradigms. Likewise it is a process of data validation (Noble & Heale, 2019)

Why triangulation?

- i. It is used because it uses a diversity of information sets in explaining different features of the phenomena under study,
- ii. It enhances the research. It also assists repudiate where one dataset nullifies a hypothesis produced by the other.
- iii. Furthermore it helps to confirm a hypotheses in cases where a set of results confirms the other.
- iv. It can also assist in explaining the findings of the study
- v. Lastly, it can assist to explain the findings of the research. Most importantly, the approaches which leads to similar findings in order to provide more assurance to the study results (Noble & Heale, 2019)

### **3.3.2. Data Collection Instruments.**

Different data collection tools were used. The data collection instruments used included the questionnaire which included both closed and open ended questions. The study carried out

by Yin (2014) asserted that, when carrying out a study it is advisable to use various sources of data. Numerous certainties happen in any given circumstances concerning the researcher, participants and those who read and those interpreting the research as such, it is very crucial that the researcher reports authentically and relies on what the respondents had reported and their interpretations of the phenomena under study (Creswell, 2013).

To ascertain this, the views above elucidates that, the certainties carried out in research are seldom linear, instead they involve the usage of numerous sources engaging various techniques during the exploration of a case and provide a comprehension of a state using a productive description (Creswell, 2013).

#### a. Types of data

##### i. Primary data

This is the data that is collected for the absolute use of the research. The data can be collected through the use of a variety of tools. The tools include observing the behaviour of the participants or use of interviews such as focus groups and in-depth, semi structured and questionnaires. Observation encompasses, recording, transcribing, analyzing and interpreting the behaviour of people in the study (Dalati & Marx Gómez, 2018).

##### ii. Secondary data

This is the data that had been already collected. This is found in databases. This data informs the researcher about what other researchers had already discovered about the topic under study. The benefits of secondary data is that, it is easy to get as compared to primary data and less costly. It also saves time because the data has already been collected and tested. Its drawback is that the collected data may not meet the precise needs of the study which is being undertaken and the researcher (Dalati & Marx Gómez, 2018).

**Table 3**  
*How data was collected*

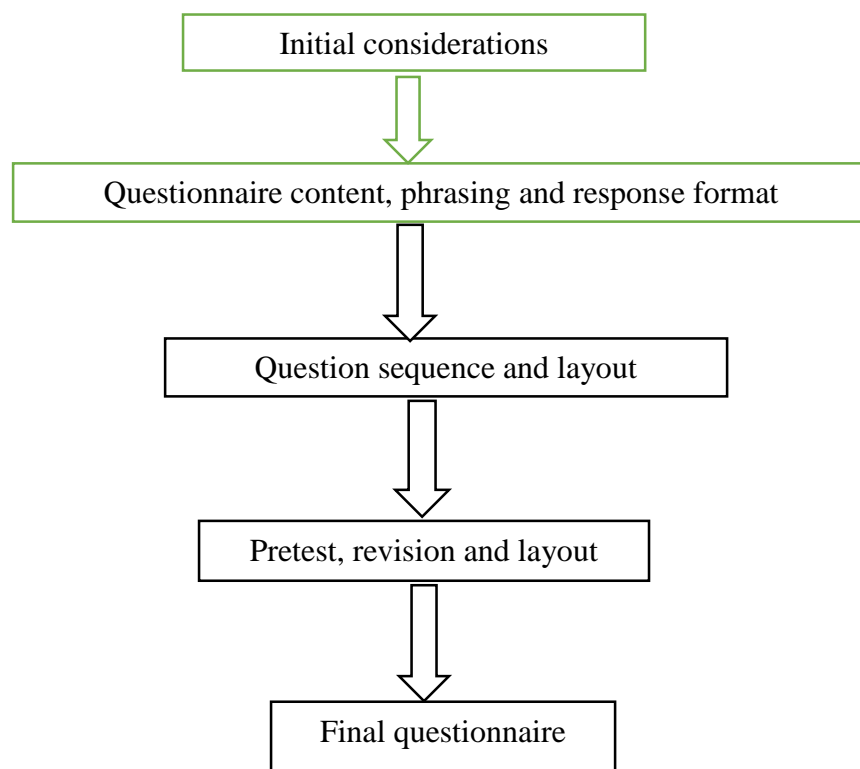
Research objectives	Research questions	Possible sources of data
To establish which curriculum framework is followed during curriculum development in technical vocational education	What is the curriculum framework that is used during curriculum development process?	Self-administered Questionnaire Phone interviews Focus group interviews Face to face interviews
To investigate the factors that are required for the development of a quality technical vocational curriculum education	What are the factors that are considered during curriculum development?	Self-administered Questionnaire Phone interviews Focus group interviews Face to face interviews
To establish whether the certificate and diploma curriculum in technical vocational education is aligned	How aligned is the certificate and the diploma curriculum in technical vocational education?	Self-administered Questionnaire Phone interviews Focus group interviews Face to face interviews
Research objectives	Research questions	Possible sources of data
To establish how consultation between the stakeholders and curriculum developers is carried out.	How is consultation between the external and internal stakeholders done?	Self-administered Questionnaire Phone interviews Focus group interviews Face to face interviews

### c. Questionnaire

A questionnaire was conceived by the British anthropologist, explorer and statistician Sir Francis Galton in the late 1800. The questionnaire is very critical in the achievement of a study and its achievement rests on the way it has been designed. For the researcher to collect valuable and appropriate data, it is crucial to be cautious when designing the questionnaire. A well-crafted questionnaire needs understanding and exertion, and requires to be planned and designed in various stages. The figure below shows the development stages of a questionnaire (Roopa & Rani, 2012):

**Figure 14**

*Types of questionnaire survey*



### d. Types of questionnaires

A questionnaire is a data collection tool in which participants answer the questions on their own. It is well structured and it permits collection of same type of data to be gathered from a larger group of people in a similar manner and the information to be analyzed

systematically and quantitatively (Roopa & Rani, 2012). Its advantages are, it can be easily administered, cheap to design, takes less time to complete, it can directly compare groups and individuals, it requires less resources, it can be used during pre-testing and it also intensifies confidentiality and the data can also be qualified (Leedy, 2010; Roopa & Rani, 2012).

Questionnaires are of four different categories and these are; contingency questions/cascade format, matrix questions, and closed ended and open ended questions. The study used the closed and open ended questions. For closed ended questions the study used scaled questions. Responses were graded in a likert scale of 1-5, where 1: strongly agree, 2: agree, 3: Neutral, 4: disagree and 5: strongly disagree. Regarding the open ended questions the responses were not recommended. The participants used their own understanding, opinions and beliefs.

i. Self-administered questionnaire.

In a self-administered questionnaire, firstly participants comprehend the information beforehand so as to understand it. After they had perceived it, they need to understand how it has been arranged and the language that has been used. Moreover, the participants must understand beyond the language used in the questionnaire and the responses provided. In this type of data collection participants are provided with the introduction and how they are expected to respond. They must also perceive the instructions that are intended to direct throughout the process of answering the questionnaire (Jenkins & Dillman, 1995).

The self-administered questionnaire enables the respondents to answer the questions independently at their own pace. The questionnaire was given to the lecturers at both the certificate and the Diploma offering institutions. The researcher distributed the questionnaire to the respondents, and collected their ideas concerning their engagement in the process of curriculum development. Their responses provided the researcher with an understanding of how they are involved in curriculum development. Using the questionnaire the researcher was

able to find out the lecturer's level of involvement in the process of curriculum development. The data collected from the participants was very critical because it helped to intensify and broaden the validity of the inferences drawn from the study.

ii. Face to face interviews

This is a data collection technique whereby the data is collected from the interviewee through interaction, conversation and time contact (Combes, 2001). Furthermore, it dictates real contact between the interviewer and the interviewee (Ghauri & Gronhaug, 2005) they further asserted that, "interviews provide a way to obtain peripheral information that may be linked directly or indirectly to the causes and effects associated with an analysis goal; interviews may be conducted on one- on-one basis." There are two categories of interviews that is; the structured and unstructured interviews. The structured being the formal and the unstructured which is the informal (Combes, 2001). This research study followed the structured interview in the form of face to face interview.

The face to face interview has the following advantages. The researcher has contact with the interviewees. The researcher has the chance of explaining some questions which may not be clear to the interviewee and it offers flexibility to the researcher to probe for more possible responses and thus accord the researcher the opportunity to may get more data. The disadvantage is that, it is costly, consumes time and there is a probability of the researcher being bias (Neuman, 2003). Adding more,

An interview guide was created so as to guide the interview process. The significance of the interview guide cannot be overemphasised during the interview process because it is a tool that helps the researcher to ask relevant questions at the precise time and correct order. The interviews were held with the curriculum developers. The interview questions were contributory to collecting data concerning, curriculum framework, alignment and quality and

moreover the manner in which they involve the stakeholders when developing the technical and vocational education in Botswana.

### iii. Focus group Interviews

The evolution of the focus group interviews can be tracked back to Emory Bogardus in 1926. Focus groups have been used for various purposes for example it has been used in researches for US military, Marxist revolutionaries, literacy activists and feminists' activists (Nyumba, Wilson, Derrick, & Mukherjee, 2018).

This is a qualitative data collection method in which the researcher's interest is to collect data from a group of people in order to get a deeper understanding of the phenomenon. The intention of the researcher is to get data from an intentionally chosen group of people instead of collecting data from a sample which represents a wider population (Nyumba, Wilson, Derrick, & Mukherjee, 2018). Focus group interviews are synonymous with face to face interviews, they differ in that the interviews solicit information from a single person while the focus group get information from a lesser group of people through discussions. In an interview the researcher acts as an investigator while in a focus group the researcher facilitates the discussions. The interests of the researcher is to collect interpretations, sentiments, understandings, judgments and approaches of the participants concerning the subject under discussion. It is very crucial for the researcher to ensure that the participants are not intimidated and that they are accorded equal chance in order to air their opinions (Babbie, 2013; Rule & John, 2011).

An interview schedule was drawn and shared with the participants Open ended questions were posed to the participants for discussions. As they deliberated on the questions forwarded to them the researcher facilitated the discussion further by probing in order to intensify the discussion concerning the topic being discussed. The group consisted of seven curriculum development officers and one Quality Assurance and Assessment Officer. The

researcher used purposive sampling when choosing the participants because of their availability and accessibility. This group interview was used as a form of triangulation so as to build on the data which had already been collected using the questionnaire and the interview tools. The discussions resulted in an assortment of philosophies and evidence. During the discussions the participants were building on each other's views and widened their interpretations. All the participants were individually interviewed.

To ensure that the discussions were under control, the researcher moderated the discussions. The researcher ensured that all the group members are accorded equal opportunity during the discussions. During the debates and conversations the researcher ensured that there is no intimidation of others. This session was an eye opener to the researcher as it accorded the researcher an understanding of the participants' opinions and values concerning curriculum development process. During the interview, focus was on the topics under discussion in the interview guide. Focusing on the questions fostered interactions with the respondents and encouraged them to deliberate more on the topic. It further encouraged the researcher to discover the views and stances on certain topics. This encouraged interaction among the group members. The participants were also allowed to ask questions to seek clarity. Further the nonverbal cues enhanced the activity. The discussions were recorded and listened to during the later stage.

Although a focus group interview can provide primary data which is rich, its disadvantage is that, some participants may want to dominate the discussions if not well moderated, especially with novice interviewers. This will lead to the results which are not representative of other participants' views. The respondents may not share their ideas especially if the topic under discussion is a sensitive one (Kruger, Rodgers, Long, & Lowy, 2019).



Never the less, the interviewer in this case has experience in interviewing which she gained through her working career and counselling sessions. This helped in controlling, facilitation and moderation of the sessions. The session was well facilitated, respondents did not intimidate each other. All the participants had equal opportunity and contributed fully.

The composition of the group was for the officers who are fully engaged in curriculum development. The quality assurance officer was included because before the curriculum could be implemented it has to go through quality assurance to ensure that the developed curriculum is valuable. The participants were not forced in to being a part of the focus group they willingly participated. They were very enthusiastic when sharing their experiences and thoughts. The environment was cordial as they all shared their opinions at will.

#### d. Piloting of the instruments

The data collection instruments were piloted to check the reliability and validity of the questions to be administered. This was done so as to take care of any phrase that could cause misunderstandings and check the usability through analysis. This also allows the investigator to rework on the questions that are not well structured. This will also check the time taken to complete the questionnaire. The questionnaire was given to ten people as a pilot. The questionnaire was checked for reliability by the use of the Cronbach Alpha reliability test. The reliability test results gave a reliability index of 0.95 which according to the interpretation the questionnaire is excellent (Tavakol & Dennick, 2011). The ANOVA: two factor without replication was used to test the hypothesis, the result ensured the investigator that the tool is reliable and can be administered to the entire study group. To put more emphasis to the above, Davies (2007) posited that, piloting a questionnaire is beneficial because it gives the researcher the assurance that, the wording used in in the data collection tool will be comprehended by the participants.

### **3.4. Operational definition of Variables.**

This section will look at the operational definitions of the terms quality, curriculum, curriculum development, curriculum framework, curriculum alignment and stakeholder involvement. The term curriculum framework is defined in the context of a student centered curriculum which is a required for a competency based education system. The competency based system encourages discovery learning. The term curriculum alignment would be defined with regard to constructive alignment of the learning outcomes and the assessments and finally the stakeholder involvement would be discussed with regard to the impact that lecturers makes in curriculum development and implementation.

#### **3.5.1. *Quality***

In various contexts, quality encompasses attributes such as durability, reliability, performance, and suitability for intended use. It often involves a continuous process of improvement to enhance value and satisfaction for users or stakeholders. In education, for example, quality can pertain to the effectiveness of teaching, the relevance of curricula, and the overall learning experience. In the context of this study, Quality refers to the degree of excellence or the standard of something, often assessed based on its ability to meet specified requirements, expectations, or standards (Arcaro, 2024).

#### **3.5.2. *Curriculum***

It refers to the structured set of educational experiences and content that schools or educational institutions provide to students. It includes the subjects taught, the materials used, the learning objectives, assessments, and the pedagogical approaches employed to facilitate learning ( (Juliani & Aslan, 2024)).

#### **3.5.3. *Curriculum development***

This refers to the systematic process of designing, implementing, and evaluating curricula to ensure they meet the educational goals and needs of learners. This process involves

researching and analysing educational requirements, engaging stakeholders (such as educators, industry experts, and community members), and continually refining the curriculum based on feedback and changing societal demands. The aim of curriculum development is to create a coherent and relevant educational experience that enhances student learning and prepares them for future challenges (Juliani & Aslan, 2024)).

#### ***3.5.4. Curriculum Framework.***

The quality of technical and vocational education is based on the program's curriculum framework. A curriculum should encompass the principles that guide the structure, content coverage, the modes of assessment and the teaching and learning methods. The curriculum should cover the theory and the practical, individual and the societal aspect. The curriculum framework should frame the philosophies and the ideologies that will afford a relevant foundation for a competency based technical and vocational education that is, sustainable and can encounter the dynamic changes of the 21<sup>st</sup> century (Ratnavadivel, et al., 2014).

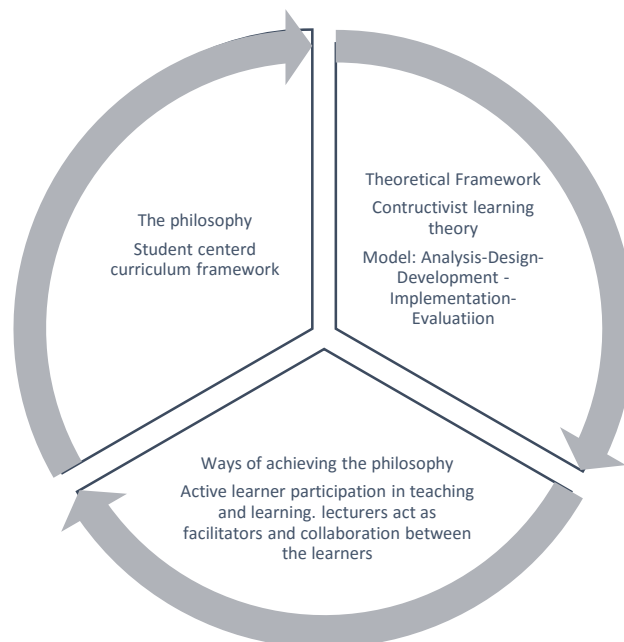
The policies that informed curriculum framework in Botswana dates back to the year 1975 with the formation of the National Commission on Education (Education for Kagisano which its mandate was to draw a curriculum which is relevant to the people's needs. This was followed by the Revised National Policy on Education of 1994 which was mandate to look at the weaknesses of the Education for Kagisano and improve on them. Lastly but not the least, Education and Training Strategic Plan (ETSSP) of 2015 which was mandated to come up with a curriculum which will produce a competent human resource which is skilled and can participate in the economic market locally, regionally and internationally. All this policies advocated for a curriculum framework that will promote the human, societal and economic growth of the country (Botswana Government, 2015). Currently there is a country-wide concern about the quality of the technical and vocational education graduates. This has led to

increment of the number of youth who are not employed and thus decrease in the socio economic status of the country.

This research's intention is for the sector of Technical Vocational Education and Training (TVET) to develop a curriculum framework that will equip the learners with the skills which will enable them to construct their own knowledge and be able to interact with each other and their lecturers. The overarching philosophy of the curriculum framework is to have a curriculum that is student centered, where the students are actively involved and can explore and show understanding of the concepts taught. Furthermore, a curriculum framework which is informed by all the stakeholders.

**Figure 15**

*The technical education curriculum framework*



The definition of curriculum framework in this research is guided learning. The technical and vocational education has 3 interacting elements. Firstly the key philosophy is the student centered learning. This is described as a method of teaching where by the learner is guided by the facilitator in order to achieve the expected results. The teacher acts as the

facilitator. It is underpinned by the values of self-dependence, open-mindedness, willingness to learn and development of problem solving skills and inspiration of collaboration and cooperation (team work) (Ali, 2019)

The theoretical background that guides the teaching and learning in this framework is the constructivist theory which concedes various socially formed realities, perceptions and experiences. It assumes that learners discover novel and old thoughts by collaborating and conversing with one another and their lecturers (Chuang, 2021). Constructivism theory suggests a teaching framework that emphasis that learners are supposed to create knowledge and the academic tasks that they require in order to accomplish the expected result (Sasan & Rabillas, 2022).

The curriculum framework is further based on the Analysis-Design- Development Implementation-Evaluation model (ADDIE). This model encourages a collaboration of stakeholders with the curriculum developers during curriculum development. This collaboration enhances curriculum relevance to both internal and external stakeholders. The model further encourages learner centered methods of delivery during teaching and learning (Budoya, Kissaka, & Mtebe, 2019).

The framework encourages a shared learning environment where the learners are facilitated to induce meaning and come up with new ideas, bearing that in mind and pondering on their previous proficiencies (Middleton & Moroney, 2019). Furthermore, there is a need for the students to collaborate actively together in order for them to achieve the expected outcome.

#### ***3.5.5. Curriculum Alignment.***

To mitigate the challenges that Botswana is facing of high rate of youth unemployment in the sector of technical and vocational education. There is a need for an aligned technical and vocational education among all the levels of vocational education. Curriculum alignment is the congruence between the country's major needs and curricular. The curriculum is managed

by the Ministry of Education and Skills Development and what the lecturers present during the process of learning (Bay, 2016). Education should be designed and planned such that it lead the learners to an appropriate direction. It is crucial to guarantee that there is coherence between the curriculum content, teaching and learning resources and the instruments used in assessment. This is important because misalignment damage the education standing of the system (Kim, Lee, Lee, & Lim, 2022).

In the context of this research, curriculum alignment will be defined with reference to the curriculum development which enables the learners' to easily transit from Certificate to Diploma level. This two levels have been targeted because the technical and vocational education under the department of technical education in Botswana ends at the Diploma level. Currently the department is developing new technical and vocational education programmes. The move which has been driven by the Botswana's vision 2036. The vision which intends to drive Botswana's economy to a knowledge based economy (BotswanaGovernment, 2015).

The technical and vocational education has been mandated to produce graduates who are entrepreneurially skilled and can create job opportunities for others. With this in mind, the curriculum constructed should be aligned from the lower levels to the higher levels. The alignment should be with regard to content, teaching methods, objectives and learning outcomes. This is done so that the technical and vocation education system is in one accord and can contribute to the appropriate vocational education graduate (Loughlin, Lygo-Baker, & Lindberg-Sand, 2021). This is embedded in the constructivism theory which posits that, when developing a curriculum, there is a need for a relationship between teaching, the curriculum and an articulation of the association between the learning outcomes, the performance tasks and the assessments.

Alignment of the curriculum guarantees easier linkage of concepts for the students when they move to another level. This will make it easier for the learners to conceptualize and relate the new concept to the previous knowledge.

#### ***3.5.6. Stakeholder involvement.***

The influence of stakeholders in the technical and vocational education curriculum development is limitless. The stakeholders are required to ascertain that the curriculum developed benefit the society that it is expected to serve. They further ensure that the curriculum is implemented in the manner that will benefit the learners. The stakeholders who have an impact in the vocational sector are the industry as the employer of the graduate and the lecturers who are the implementers of the curriculum. For the purposes of this research the definition of the stakeholder involvement and its impact will be focused on the lecturers as they are expected to implement the newly developed curriculum. The study will be looked at with regard to the impact the lecturers have regarding curriculum development and implementation.

A collaborative curriculum development is a vital prerequisite for the relevancy and the currency of the teaching and learning. There is a consensus among scholars of education that the active involvement of lecturers in curriculum development yields fruitful results and viable educational modifications (Pieters, Voogt, & Pareja Roblin, 2019). They further posited that, there are three reasons backing up this logic. These are:

- i. Lecturers are professionals, who interact with the learners on a daily basis, as such they help the curriculum developers to come up with a curriculum that is context-specific, which encourages innovativeness and relevance. These, can enhance the possibility of learner achievement in the institutions.
- ii. Teacher involvement can also enhance the teacher's professional growth because as they interact with each other, and as they do so they learn new teaching strategies and improve their skills.

- iii. Teacher involvement enhances likelihood for viable course transformation. (Pieters, Voogt, & Pareja Roblin, 2019).

Considering the above it shows that teacher involvement is very pertinent in curriculum development. Lecturers are the backbone of curriculum implementation in any education sector. Their involvement would ensure that the curriculum is competently implemented as it informs the teaching and learning, it also increases the motivation of a teacher. A competently implemented curriculum will bear fruitful results. For example it will ensure mastery of content by the students. The learners who have mastered their content well will perform better in their professional career. Nationally, this will lead to a competent human resource.

The terms curriculum framework, curriculum alignment and stakeholder involvement form the basis of this study. They have been defined in relation to how they are used in this study.

### **3.6. Study Procedures and Ethical Assurances.**

#### ***3.6.1. Study procedures.***

This research involved participants who provided their opinions and views concerning the topic under study. It was mandatory for the researcher to follow the right procedures. The researcher wrote a gate keeper letter to the Ministry of Education and Skills Development so that she can be granted permission to carry out the study. The gate keeper letter explained the intentions of the study and how the study will be conducted. The permission was granted. A debriefing of the participants was done through the informed consent letter in which the researcher assured the participants that they voluntarily participate in the study and guaranteed them that there would be no potential risks and or threats to them. Participants were informed that they have the right to pull out at any stage (before during or after the study has been completed). They were ensured that they would not be expected to explain the reasons that made them to withdraw. Moreover, they would not bear any consequences of withdrawing from the



study. If any participant withdraw at any stage the information that they had provided will be deleted.

To ensure the security of the data collected, it will be coded and would be accessible only to those who took part in the research. No person who were not part of the research would have access to the information. For confidentiality and anonymity, pseudo names will be used. The study design, schedules of interviews, interview guide informed consent, gate keeper letter, and the data collection tools had been inspected by my research supervisor and the university ethical research committee. Research ethical approval was given by the UNICAF Research Ethical Committee (UREC).

This study involved minimal risks. A certificate of consent was given to the participants before they were given the questionnaire, for those who were answering the questionnaire on line through the telephone, the informed consent form was read to them so that they understand what the research was all about and their position in the study.

a. Data collection

The study had three types of data collection tools. The tools varied in the structure but the content was similar. The first tool was for the lecturers, the second and the third tools were for the curriculum development personnel. The first tool was a questionnaire which had both closed and open ended questions, the second questionnaire was for the interview sessions and lastly the third tool was for a focus group interview.

b. Access to participants

Before i could get access to the participants i needed an introductory letter indicating the purpose of the study. The letter was given to the Principals of the colleges and for those who were far the letter was emailed. I got access of their emails through telephone calls. At the schools the principals directed me to the human resource department where I was directed to the departments which were understudy (Hospitality and Tourism, and Business studies

department). I met with the lecturers and distributed the informed consent forms and explained to them where they needed clarification. They consented and signed the certificate of consent. I distributed the questionnaire and set a date for collection. For the certificate offering institutions, the data was collected telephonically. The Principals of the institutions were contacted telephonically and the researcher asked for their email addresses so that I email the gatekeeper letter. I requested the telephone contacts of the concerned lecturers and called them to set up the dates for the interviews. I briefed them about the purpose of the study and obtained their consent.

For the Diploma offering technical colleges, data was collected through self-administered face to face with both open and closed ended questionnaire. The respondents included both male and female with the age of participants ranging from forty-five (45) to fifty-three (53). The certificate of consent was completed physically by the participants. As for the certificate offering institutions, the same questionnaire was completed telephonically it also included male and female with a similar age range. The consent form was emailed and requested them to sign and email back. A total of eighty nine (89) out of hundred (100) participants managed to take part in the questionnaire.

### c. Interviews

The interviews were carried out with the curriculum developers. This group was used to validate the information that was provided by the lecturers in the semi structured questionnaire. The researcher wanted to find out if there is any linkage between the data collected using the semi structured questionnaire and the interviews. The researcher has said previously that she works with the curriculum development officers in the same premises. Six (6) curriculum developers were interviewed. There were two males and four (4) females. I met with each of them in their offices and gave them the informed consent form to read and understand. An interview guide was used Participants were informed that if they are willing to

take part in the study they may sign the certificate of consent and if they are not willing they will not be forced to do so. After reading they signed the certificate of consent physically. After signing we set up a date for the interview. We agreed that the interviews will take place in their offices. I managed to interview only six people. The other participant was on sick leave for a period of a month as such she missed the interview date. The age ranged from forty (40) to fifty (55).

The participants were guided and provided with clarity where they did not understand questions. This was done so that the interviewer can get a deeper knowledge of the issue being investigated. The data collected from the respondents was valuable because it heightened the validity of the results and deductions drawn. Through the interviews, the researcher was able to understand the curriculum development process and the views that the curriculum developers have concerning this process. The process was recorded. Before the interview commenced the researcher asked for permission to record the session.

#### d. Focus group

The focus group interview involved only the curriculum developers and the quality assurance and assessment officer. The involvement of the quality officer was to investigate the extent to which quality is maintained and how they ensured that it is met. The researcher organized a group meeting with the curriculum developers and set a date, venue and time and they were also informed about the duration of the interview session. During this meeting the participants were made aware of the informed consent form, they requested to sign the certificate of consent during the meeting and were made aware that even though they had signed the form if they no longer intend to be part of the interview they are free to do so. That, if they withdraw there will be no consequences whatsoever. The researcher prepared the interview room very well. The recorder and the scripts for recording and transcription were organized in time. Permission was sort from the interviewees to record the session. For

confidentiality and anonymity, the participants were given pseudo names so that they cannot be linked in anyway with data collected. The data collected was transcribed and coded according to themes related to the study.

The researcher managed to control the group well by using the interpersonal skills that she had acquired from her experiences as a teacher and a counsellor. The respondents collaborated with each other and respected each other's views. They took turns when answering the questions. There was mutual respect and understanding among the respondents. The questions were structured and arranged according to the themes of the study. This helped the interviewer to be able collect the data that is relevant to the study themes. The researcher facilitated the discussions. Broad questions were posed to the group and allowed for the respondents to deliberate on them systematically. The researcher managed to gather the respondent's views, experiences, opinions and feelings concerning how curriculum is developed in the department of technical and vocational education. Moreover, the respondents provided rich and new information recommending how the curriculum can be done to better the lives of Batswana.

This section discussed the data collection procedures and ethical considerations applied when this research was undertaken. The procedures that were followed during data collection were outlined. That is how the data collection was carried out and how permission was sort for the data collection to be carried out. The use of the informed consent form in the study was discussed. The participants were also informed about their rights concerning their taking part in the study. The data collection methods that were employed and how data was collected was reported. The introduction of the tools and the assurance that the data collected will not be linked to them was discussed. The respondents were assured of confidentiality and anonymity. Finally the response rate for the three data collection was a success. In the questionnaire tool

only four participants did not return the questionnaire while for the interview and the focus group interview only one person did not take part.

### **3.6.2. *Ethical Assurances.***

Educational researches are carried out to tackle the educational challenges and offer solutions that will enhance efficiency within the educational sector. Similar to other disciplines, an educational research should be carried out unaccompanied by concerns or impediments which can hinder the honesty of the researcher (Bassey & Owan, 2019). This section will discuss the ethical issues in relation to the topic under investigation. The ethical issues taken in to consideration in this research are the following; protection from harm, informed consent, right to privacy, honesty with professional colleagues and confidentiality and anonymity.

#### **a. Ethics in research**

Ethics are the guiding principles that serves as standards of how the researcher should conduct themselves towards the participants when carrying out the research. They differentiate between what is right and wrong. They assist in determining the distinction concerning appropriate and inappropriate conduct. (Bassey & Owan, 2019). Furthermore, scholars are expected to follow them so as to circumvent glitches in the process of conducting the research and to yield valid and reliable research results that will counteract the challenges faced by the educational sector in the society.

#### **i. Protection from harm**

The duty of the researcher when conducting a study is to assure the participants that they are free from harm, that the results of the study cannot be associated with them in any way. This ethical issue stems from the principle of respect and human self-worth. This ethic dictates that, investigators must ensure that participants' sovereignty is protected at the same time assuring complete disclosure of the features surrounding the study. To assure protection from harm, participants need to be informed about the study procedures (Barrow, Brannan, &

Khandhar, 2022). The researcher fully disclosed the intentions of the study and explained the significant role of the participants in the study and the importance of voluntarily participating in the study. Moreover, the benefits of undertaking the study to the department of technical and vocational education and the country as a whole were explained to the participants.

With regard to this study, participants were informed that, they are participating voluntarily in the study and that if at any stage of the research they feel like withdrawing from participating they are free to do so. That if they withdraw from the study they will not be penalized. The researcher ensured that the participants understood their position in the study by allowing them to ask questions where they needed clarity. To ensure more understanding of their status in the research the researcher asked them questions about their willingness to take part. The participant's response indicated that they understand what they are engaging themselves in.

To add more to the above sentiments, Flick (2008), asserted that, there is a need for the researcher to guarantee the participants of the protection from any harm. The researcher guaranteed anonymity before the data collection started. If in any stage the respondents gave any information that was implicating someone the researcher kept it securely. It is very crucial for the researcher to search for any data that can implicate the respondents and safeguard it (Babbie, 2020).

In summary, protecting the respondents from harm, assuring them that the data collected will be stored in a secure place of is very crucial. The assurance that anonymity and confidentially accords the respondents the opportunity of freely sharing their views, opinions and feelings towards the study.

## ii. Informed consent

Informing the participants about the intentions and the researcher's expectations when carrying out a study cannot be overrated. The research ethics necessitates that the respondents

should be informed so that they understand their role regarding the study process (Barrett & Carter, 2020). The University Research Ethics Committee ensures that applicable regulations are abided by and the researcher is well vested with procedures of how to obtain informed consent. To guarantee that informed consent had been granted, the participants are expected to sign a certificate of informed consent. Informed consent requires that informants be well-informed of their rights as the respondents in the research. They need to be knowledgeable most importantly about the voluntary participation and that, they are free to pull out at any stage of the research and that they cannot be penalized for their withdrawal. That, in case they withdraw the information they provided will also be removed from the form study data.

With regard to this research, the researcher followed the procedures required by the UNICAF University concerning obtaining informed consent from the participants. The researcher obtained permission from the institutions and was granted by the principals. The participants were given the informed consent form before they took part in the research. They were also given the opportunity to ask questions where they were not clear on some issues. The research also requested for consent to use the recorder during the interview sessions. For those who the data was collected telephonically were emailed the informed consent form and requested to sign the certificate of consent and return it to the researcher as evidence that they had consented. The participants were not forced to take part in the study. This is evidenced by the signing of the certificate of consent. For the participants which were met physically the informed consent form was read together with the participants and clarity was given when need arises.

Moreover, informed consent required that the respondents should be accorded respect and the expectations from them be outlined clearly so that they should be distressed in any way. There is a need for them to not be discriminated against. Equality important is that they need to participate voluntarily, that is they should not be coerced in to participating. The information

should be clear so that participants understand their position in the study. The certificate of consent should also be securely kept (Husband, 2020). In conclusion, the researcher ensured that, all the requisites for informed consent by the university were taken into account when collecting data from the respondents.

### iii. Confidentiality and anonymity

When conducting a research that use people as subjects, researchers should ensure that they guard against the safety of the participants. Researchers should find ways of securely safeguarding the identity and sensitive information that the respondents are reluctant to disclose. To ensure that the information is not disclosed, researchers should conduct anonymous and confidential research (Wiles, Crow, Heath, & Charles, 2008; Bassey & Owan, 2019; Walford, 2005). To guarantee that anonymity has been achieved, the responses from the respondents cannot be associated with them by either the researcher or the people reading the research (Babbie, 2020). On the other hand, for confidentiality, the responses can be identified with the participant but the participant is ensured that the information will be kept safely in a secure place such that is not accessible to unauthorized people (Babbie, 2020).

When conducting anonymous research, the researcher should ensure the participants that their identity will never be revealed and information will never be linked to them. The researcher should guarantee that the collected information does not include anything that could be associated with the participants. This eliminate the risk of attributing data to the participants. The confidential research refers to the secure ways of keeping the data collected safely and protection of the privacy of the respondents. The data should be guarded against being accessible to the people who are not meant to (Walford, 2005).

With regard to this study, the researcher ensured confidentiality and anonymity through the use of pseudo names. The researcher had three tools in which one was a semi structured questionnaire where participants were answering physically and through telephone. The



questionnaire did not have a portion for name, which ensures that the responses cannot be traced back to participants. The researcher emphasised to the participants that they are not required to write their names. With respect to the interview the researcher ensured that they are conducted in a closed room where there was no access for other people. To ensure that no one enters, a note was written and placed on the door. During the session, the interviewees were not addressed by their names. Regarding the focus group, the interviewees were given pseudo names and to ensure that they also keep the information confidential, the researcher emphasised the secrecy of the data being collected. The researcher also informed them that while she gives assurance of the confidentiality of the data collected, she cannot assure that other respondents will do so. Even so, the researcher asked the participants to respect the privacy of others.

To sum up the above, the ethics are very central in research. The participants in research should always be assured of their safety and the security of the information that they provide to the researchers. Furthermore, they need to be given all the information regarding the topic under study and what and how the information is going to be used. It is important to be ensured of their position in the study. Moreover it is imperative to assure the participants of their confidentiality and anonymity.

### **3.7. Data Collection and Analysis.**

Data collection and analysis is an important aspect in research. This is the process whereby the researcher gather and evaluate the data that had been collected from the participants. It is important that during this process the researcher ascertain the type of data they require and the data collection techniques and information source that they are going to use. It is very crucial for the researcher to align the data collection with the purpose and goal of the research, the type of data the researcher is intending to collect, the data collection techniques to be used and the safety of the data and how it is going to be analysed. There are two types of data collection; that is primary data collection and secondary data collection.

Primary data collection is whereby, information is collected directly from the informants. The researcher physically interacts with the participants so as to obtain original information which is relevant to the research goals. Data collection for primary data can be collected by the use of different data collection techniques such as interviews, surveys and questionnaires, focus group interviews, experiments and observations. Secondary data is the data that has been collected by other researchers for a dissimilar intention. Sources of secondary are published sources, government and institutional records, online data bases, past research studies, and data that is publicly available.

For this research, qualitative and quantitative data would be collected and analysed. The qualitative data obtained from the respondents would be analysed thematically by grouping the different ideas according to themes. The quantitative data would be presented in a table form according to the sum of answers gotten from the respondents. The qualitative data would be collected from the open ended questions, interview and the focus group interviews and the quantitative data would be collected from the closed ended questionnaires.

a. Open ended questions

These questions were found in all the tools. That is the questionnaire, interview and focus group interviews. The questionnaire for the lecturers will be administered in two ways. Firstly for those lecturers who the researcher can reach physically were given the questionnaire to answer. Secondly those lecturers who could not be reached physically were contacted through the telephone. Before they were contacted, the researcher called the Principal of the college to make him aware of the data collection exercise that will be carried out in the chosen departments. The researcher introduced herself to the school management and the Human resources manager seeking permission to see the participants. The participants were gathered and addressed on how the research will be carried out. The participants were made aware of the purpose of the research and the study objectives. They were informed of their rights in

participating in the study and ensured of the safety of the data collected. Furthermore, the participants would be ensured of anonymity and confidentiality.

The main questionnaire in which all the open ended questions were drawn from consisted of four sub sections which the researcher believed that the data collected would be able to answer all the research questions. The sub sections are firstly, curriculum development framework. Here the researcher wanted to check the level understanding of the participants of the curriculum framework. This included the components of a curriculum framework, policies that inform the curriculum of technical and vocational education and the curriculum framework that is being used in technical and vocational education curriculum development. The data collected from these questions would answer the research questions which wanted to establish the curriculum framework that is being used during the curriculum development process and furthermore it would test the assumption that there is a need for a specific curriculum framework model when developing a curriculum.

Secondly the quality technical and vocational education and training (TVET) curriculum, this subsection had five specific questions which the researcher believed that they would provide answers of whether the curriculum developed meet the quality standards that are required for the betterment of technical and vocational education in Botswana. Focus was on how the respondents would describe a quality TVET education, the factors that they believe should be considered so as to produce a quality curriculum and how they would ensure that the curriculum is globally competitive and finally how the current curriculum enhances innovativeness and creativity. The data collected is aligned with the overall research question which investigates the quality of curriculum development which is key for development of the nation of Botswana.

Thirdly, the question focused on the alignment of curriculum among the certificate offering institutions and the Diploma offering institutions. The aim of this section was to find

out whether the curriculum developed allows for easier transition of learners from one level to another. Emphasis was on how they would ensure that the curriculum developed at one level is aligned and the advantages of an aligned curriculum. Moreover, it intended to investigate the factors that might hinder or enhance the development of an aligned curriculum. Furthermore it investigated the different stakeholders who can assist in the development of an aligned curricula. This section aligns with the research question which deals with the level of alignment between the Certificate level and the Diploma level and the tests the assumption which assumes that there is alignment between the Certificate and Diploma level.

Finally regarding the stakeholders level of engagement in curriculum development, the respondents were to identify the level at which they are engaged and provide the impact of being engaged at that level and they are to suggest the level at which they believe is suitable for them to be engaged and give the reasons for that. This part is aligned with the research question which investigated the level of engagement of stakeholders in curriculum development.

b. Closed ended questions

The lecturer's questionnaire included both closed and open ended questions. The closed ended questions would be used to answer the major research question which dealt with how stakeholders are involved during curriculum development and specific question which investigated the implications of stakeholders in curriculum development in the technical vocational sector in Botswana. The section contained a total of ten questions which were answered using a likert scale with a five point answer range in which the representation is as follows: 1: strongly agree 2: Agree 3: Neutral 4: Disagree 5: Strongly disagree. The respondents were expected to choose the answer which they believed represents their opinion. These questions also tested the hypothesis that, stakeholders are key during curriculum development. More focus was given to the lecturers as the implementers of the curriculum.

This was so because if implementers are not part of the curriculum development, delivery might be challenged or the irrelevant methods of delivery may be chosen and that may lead to incompetent graduates. There was a question on the stages of the curriculum development framework at which they were engaged. The respondents were to choose the stage at which they are engaged. Most of the participants disclosed that they are engaged at the implementation stage.

#### c. Triangulation

This is a technique that is used to check the reliability and the degree of authenticity of the study results (Noble & Heale, 2019). There are four types of triangulation methods, which are; Triangulation of data; triangulation of investigators; theoretical triangulation and triangulation of data collection methods. For this study, the researcher used triangulation of data collection methods (Noble & Heale, 2019). The method was used in order to allow the researcher to come up with a wide-range of discoveries. To check the credibility and accurateness of the results, the researcher combined the three different data collection methods. The questionnaire, interview and focus group were used to triangulate the results. Triangulating different data collection methods was advantageous because the methods complemented each other and thus eliminated the weakness of each. The data was gathered from the lecturers, the curriculum developers and quality assurance officer. The use of the three different participants enabled the researcher to obtain a deeper understanding of the topic under investigation

#### d. Data analysis

Two types of data were collected in this research study that is quantitative data and qualitative data. The two data types would be analysed differently. Qualitative data would be analysed by coding the data so as to come up with different themes and find out the relationship between the themes in order to answer the research questions. Coding is beneficial because it assist in the interpretation and organization of the data collected. Furthermore, it structures the interpretations and remarks into noteworthy philosophies. In qualitative research, coding

accords the researcher the opportunity to reflect, critique the findings rigorously (Saldaña, 2014). The data from the recordings will be transcribed, coded and presented according to themes. The data was analysed by the use of themes instead of using a software for qualitative data analysis because the researcher could not find a tutor who is competent with the use of taguette and other qualitative data soft wares. The quantitative data will be analysed by the use of the Statistical Package for the Social Sciences version 25 (SPSS). As alluded earlier that a five point scale ranging from 1-5 was used, the data will be imported in to the SPSS software and analysed and the results will be presented in a table form for the purposes of discussions and interpretation. To test the hypothesis, a pilot study was carried out with ten participants from both curriculum development group and quality assurance units. The investigator bared in mind that this was a chance to ensure that the data collected from the questionnaire will be able to address the research topic. This exercise was insightful to the researcher in terms of how to administer the questionnaire. A Cronbach Alpha Reliability test was used. The ANOVA two factor without replication was used to test the hypothesis and it gave a reliability index of 0.95. These results indicated that the tool is reliable. The same group was given the open ended questionnaire to complete. Issues were raised concerning the jargon that was used in the questionnaire. This helped the researcher to polish the questions so that it is clear, focused and measures what it is supposed to measure. As this is a mixed method research, the researcher discussed how the data collection tools had been tested in order to check for the reliability.

### **Summary.**

This section will summarise the key points underpinning the methodologies The key concepts to be summarized from this section are'; research approach and design, population and sample, materials/instrumentation of research tools, operational definitions, study procedures and ethical assurances and data collection and analysis.

The research design was discussed and defined as a plan of the manner in which the research should be conducted and how the subject under investigation should be tackled. It has been said that the research design depends on the ontology and epistemology of the investigator. Furthermore it encompasses, how data is to be collected, analysed and interpreted (Rezigalla, 2020). This study used a combination of qualitative and quantitative designs which is a high breed convergent mixed method. Qualitative design allows for the investigation of people's experiences in a deeper context. There are various techniques that are used in qualitative designs to collect data. The methods include, interviews, questionnaires, content analysis, observations, and visual methods. Furthermore, Johnson, Adkins & Chauvin (2020) posited that, "the purpose of qualitative research is to deepen one's understanding of specific perspectives, observations, experiences, or events evidenced through the behaviors or products of individuals and groups as they are situated in specific contexts or circumstances."

The advantages and disadvantages of qualitative design were discussed as follows. The benefits of this research design are that, the method is inductive and seeks to explore a phenomena in to depth and it allows the participants to explicitly express their views and opinions about the topic under study. In general the design is more relevant when the overarching aim is to examine, demonstrate or elucidate (Leavy, 2022). Rahman (2020) outlined the following six main advantages of qualitative research had been discussed and these are that, firstly its methods and techniques provide an elaborative narrative of the respondents' views feelings and proficiencies. Secondly, it provides a holistic understanding of the respondents' experiences in their precise settings. Thirdly, due to its elaborative nature, it is viewed as an ethnographical study as it has the ability to understand people's dissimilar opinions. Fourthly, it allows the researcher to find out what stimulates the respondents as it gathers data relating to the individuals opinion. Fifthly, it allows for direct contact between the researcher and the participants when the methods such as focus group, interviews and

observation are used. Finally it has a flexible structure it can be created and recreated. The limitations are that; it is time consuming and generalization of the results to the entire population (Rahman, 2020)

Quantitative research design includes a variety of approaches which deals with a variety of approaches with an organized exploration of a phenomena. It uses statistical or numerical data. It is descriptive or experimental in nature. A descriptive study corroborates relationships among the variables similarly an experimental study corroborates whether the variables are interconnected. The benefits of quantitative research have been discussed as impartiality, control and accurate measurements and it can be administered in short period of time (Mehrad & Zangeneh, 2019).

The researcher used the mixed method which is a combination of both qualitative and quantitative analysis. The two methods were integrated in one study. This method assists researchers to get a complete understanding of the phenomena under investigation. The benefits of using this method are that; combining the two methods allows for, complementary, completeness, diversity, development, expansion, confirmation and compensation among the methods (Connelly, 2009). Likewise the overall aim of mixing the two approaches was to minimize the disadvantages of the two approaches and utilize their advantages.

Population was discussed as the number of people found in living in the same area with similar traits and it is where the sample is drawn from. This study targeted a population of lecturers who are involved in the departments of Hospitality and Tourism and Business studies in the Diploma and certificate offering institutions. A sample is a subgroup obtained from the population and this subgroup has the same characteristics as the main group (Andrade, 2021). The main advantage of using a sample is to get a small number of subjects which represent the larger population so as to make valuable conclusions (Rahman, Tabash, Salamzadeh, Abduli,



& Rahaman, 2022). There are two main different ways of drawing a sample from a population, these are probability and non-probability sampling and each has some subtypes.

Probability sampling has been discussed as a category of sampling where all the subjects stand a chance of being picked (Rahman, Tabash, Salamzadeh, Abduli, & Rahaman, 2022). The types of probability sampling are as follows; Firstly, simple random sampling in which all the subjects stand a chance of being chosen. Secondly, systematic sampling whereby, the initial participants are chosen randomly and the remaining participants are chosen sporadically. Thirdly, stratified sampling where data is broken down in to subsections which share the same traits such as age and gender. Fourthly, cluster sampling; this is whereby the entire population is split into clusters according to categories which are selected randomly and should have the same number of participants. Fifthly, the multiphase sampling; this is a more advanced form of cluster sampling and selection of participants is similar. It differs with the cluster sampling because of its accurateness. Finally the multistage sampling which is another form of advanced cluster sampling where more than two tiers of components and one is nested inside another.

Non probability sampling is a category of sampling where the chances of item of being chosen are unknown. This method includes convenience sampling, as its name depicts, the participants are chosen at the convenience of the researcher. They are chosen because they are readily available. Secondly, quota sampling which assures that a definite demographic trait will be represented in the exact degree the researcher desires. Thirdly, snowball in which the initial participants are chosen either probability or non-probability (Bhardwaj, 2019).

The materials/instrumentation of research tools were discussed. The various data tools that had been developed can be used simultaneously so as to augment each other's weaknesses. As alluded earlier that this study is a mixed methods, triangulation of data collection methods were used. Triangulation was used because it uses a diversity of methods which explains the

phenomena under study (Bans-Akutey, 2021). The data collection tools used had both closed and open ended questions. The manner in which the data collection tools were used to answer the research objectives, research questions and possible sources of data were discussed. The development of the data collection tools were discussed. Firstly, the researcher developed a questionnaire which included both closed and open ended questions. The closed ended questionnaire was a 5 point likert scale which had 1. Strongly agree, 2. Agree. 3. Neutral 4. Disagree and 5. Strongly disagree. The questionnaire was answered by the lecturers. The second and third tools were the interview and focus group interview respectfully and they were both answered by the curriculum developers and the quality assurance officer. The data collection tools were piloted to check the validity and reliability. The Cronbach Alpha reliability test was used. The ANOVA two factor test was used to test the hypothesis and it gave a reliability index of 0.95 which indicated that the questionnaire is reliable,

The operational definitions of the terms curriculum frame work, curriculum alignment and stakeholder involvement had been discussed. Firstly, it was discussed that, a Curriculum framework should frame the philosophies and ideologies that will afford a relevant foundation of a competency and outcome based education. Furthermore it was deliberated in terms of the policies that informed the need for technical education and training in Botswana and how it should be implemented. The overall mandate of TVET was defined as the need to have a student centered curriculum where the learner is actively involved. The framework is guided by the three interacting elements of philosophy, theoretical framework and the ways of achieving the philosophy. The curriculum framework definition is based on the Analysis-Design-Development-Implementation-Evaluation model which encourages the involvement of stakeholders during curriculum development (Budoya, Kissaka, & Mtebe, 2019).

Curriculum alignment was defined in terms of a curriculum that allows for easy transition of the learners from a certificate to a diploma. It was deliberated that, the alignment

should be viewed in terms of content, teaching and learning, objectives and learning outcomes (Loughlin, Lygo-Baker, & Lindberg-Sand, 2021)

Stakeholder involvement was defined with regard to the significance of lecturers in the curriculum development to ensure the competency of the graduates and the quality of the curriculum developed. Teacher involvement is very crucial as it strengthens the likelihoods for a viable course transformation (Pieters, Voogt, & Pareja Roblin, 2019)

The study procedures and ethical assurances were discussed and how the procedures were followed regarding seeking study permissions from the colleges, the participants were debriefed with the use of the informed consent. They were also informed of their rights, that they are not forced to take part in the study and that they can withdraw at any stage and that if they decide to withdraw their information will not be used in the study. The respondents were ensured of the security of the data that it will be put in a lockable cabinet. The study design, schedules of interviews, gate keepers letter, informed consent form and the tools had been checked by my supervisor before they were submitted for approval by the UREC committee. Research ethical approval was given by the UREC committee.

Data collection was done using three tools which varied in structure but similar content. The tools were a questionnaire which was administered to the lecturers. A total of eighty- nine participants out of hundred responded. The individualized interview and focus group interview was done by the curriculum development officers. Six curriculum development officers took part instead of seven and the other participant was on sick leave on the day of the interview. A focus group interview was done with the curriculum developers as a way of triangulating. The group respected each other's views and there was no intimidation of each other. The six members who were interviewed individually participated in the focus group discussion.

The ethical issues discussed were protection from harm where the participants were ensured that the results of the study would not be traced back to them. This stemmed from the

principle of respect and human self-worth. To ensure that the participants were informed about the study procedures. The participants were informed about the intentions of the researcher's expectations. It is necessary to inform the participants so that they understand their role (Barrett & Carter, 2020). Confidentiality and anonymity were ensured by the use of pseudo names so as to guard against the safety of the participants. Bassey & Owen (2020) alluded that it is the responsibility of the researcher to guarantee the anonymity and the confidentiality of the participants.

Quantitative and qualitative data was collected by the use of a questionnaire, interviews and focus group discussions. The data collected qualitatively was transcribed, coded and grouped according to themes. The quantitative data was analysed by the use of the statistical package of the social sciences version 25.

## CHAPTER 4: FINDINGS

### 4.1 Introduction.

The research study purpose was to investigate the level of understanding of the curriculum implementers and curriculum developers' regarding the development of curriculum in the Botswana technical and vocational education. The study focused on the involvement of the lecturers in the process of curriculum development, the competitiveness of the curriculum and the alignment of the curriculum among the Certificate and Diploma levels. The results revealed that, involvement of the lecturers and industry stakeholders would yield positive results in terms of the teaching and learning materials required and relevance of the graduates to the industry or employers. Furthermore, the study results indicated that the certificate and diploma levels curriculum developers develop their curricular individually. The participants recommended a collaborative way of developing the curriculum. The results shall be further discussed later in the study and presented in the form of tables and in the narrative form,

The focus of this convergent mixed method research was to investigate the process of curriculum development in technical and vocational education in Botswana. The investigation focused on curriculum framework, curriculum alignment, lecturer involvement in curriculum development and quality technical and vocational and training. This section shall explain how trustworthiness of the data was carried out. The structured and unstructured questionnaires were designed to collect data with the use of a questionnaire, interview and focus groups. The data was collected from the lecturers, curriculum developers and quality assurance officer. The participants used in the research are the lecturers who are the implementers of the curriculum, the curriculum developers in their capacity as the custodians of the curriculum and the quality assurance officer act as the validator of the curriculum.

The questionnaire had open and closed ended questions which are related to the predictor and variables under investigation. The questionnaires were developed based on the literature review. For the open ended questionnaires, the researcher wanted to get a deeper understanding of the participants regarding the phenomenon under study. The close ended questionnaires included statements rated on a 5 point likert scale with scores ranging from 1 to 5 with 1 being the strongly agree and 5 being strongly disagree. The written statements reflected the involvement of lecturers in curriculum development.

The data collection exercise was carried over a period of six weeks. As for the focus group and individual interviews, an interview guide was developed and the interviewees were guided in relation to how and where the interviews would be conducted. An interview room was prepared beforehand to ensure security and safety of the participants and to ensure that there are no distractions during the session.

a. Result reporting

A convergent mixed method study was implored in this research by the use of both structured and unstructured questionnaires. The researcher administered a questionnaire to the lecturers both face to face and telephonically. Additionally the researcher carried out individual and focus group interviews with the curriculum developers of the technical and vocational education in the Department of Teacher Training and Technical Education. The main objective of this study was to investigate the process of curriculum development in technical and vocational education in Botswana focusing on four objectives which are:

- i.** Obj1: To explore the curriculum framework that is used during curriculum development
- ii.** Obj2: To establish the factors that are required for a quality technical and vocational education curriculum development
- iii.** Obj3: To investigate the level of alignment between Certificate and the Diploma level curriculum

**iv. Obj4:** To establish the level of consultation with curriculum implementers (lecturers)

The research's objective was to answer the following research questions:

RQ1: In what ways can the competency of the technical and vocational curriculum framework be enhanced?

This research question dealt with the understanding of the curriculum framework that is in place, its composition and the policies that informed the curriculum which is being used.

RQ2: What steps can the technical and vocational sector consider in order to effectively ensure the development of a quality curriculum? The focus of this question was on the development of a quality curriculum which is very central regarding the competitiveness of the graduates, and the nation as a whole. The study looked at the factors that are required for a quality curriculum to be developed. RQ3: How does misalignment between certificate and diploma curriculum affect learner progression among the levels? Focus was on how to ensure that the curriculum of the diploma and certificate levels feed each other. The results revealed that for an alignment to be realised, there is a need for a collaboration among the curriculum developers at both certificate and diploma. RQ4: To what extent does lecturer involvement in curriculum development benefit the Botswana technical and vocational education? This question focused mostly on one aspect of the stakeholders which is the lecturers. Focus was on the level at which the curriculum implementers have an input in the process of curriculum. Furthermore, it looked at the stakeholder implications concerning their involvement.

Data was gathered through structured and unstructured questionnaires, personal interviews and focus group interview. The interviews were recorded using a recorder and transcribed word for word. After the transcription the investigator read and re-read the notes and referred to the recordings where the researcher needed clarity before coding and thematic analysis was done. The researcher carried out inductive thematic analysis founded on the interview scripts and the unstructured questions. The results were presented according to

themes. As for the structured questionnaire the data was analysed statistically by the use of the Statistical Package for the Social Sciences version 25 (SPSS) and presented in tables and graphs.

Different data trustworthiness tools would be discussed. Trustworthiness of data in research is very crucial as it guarantees the reliability, accuracy and credibility of the data collected. For this research the researcher ensured credibility through the use of the following factors; thick description, member checking, collaboration, transferability, Reflexibility triangulation and confirmability. The data trustworthiness processes of thick description was used in order to afford those who read the research a deeper understanding of the context of the research. Member checking was used to strengthen the trustworthiness and the extent at which the study results are valid. It can also be referred to as participant validation. Collaboration involves partnering with stakeholders, other scholars, other specialists and partakers in the research. Transferability is the level of application of the research findings to other perspectives. Reflexivity is valuable in research as it can strengthen data trustworthiness through examination of the researcher bias, partiality, and expectations. Ethics ensured the protection of the participants from any form of harm. Triangulation would be discussed to show how various methods were used in the study. Confirmability would be discussed to demonstrate how the study results were confirmed to ensure credibility and trustworthiness.

Furthermore, transparency was ensured through clearly discussing the methods and processes that were used to collect data while validity was confirmed by encompassing the methods that were used when capturing the concepts under study to ensure that they are accurate and appropriate. The sampling techniques would be discussed in order to ensure that the sample were representative of the population under study. Data recording and safety would be deliberated in order to ensure that the data collected is error free and precise and secure. Back up processes would be discussed to ensure that data is safe and is not accessible to those



that they were not meant to have access to. During data analysis, the qualitative data in the form of recordings and scripts were read over and over and thematically arranged. The quantitative data was analysed by the use of SPSS. Objectivity was maintained to eliminate researcher bias. Ethical considerations were adhered to through obtaining informed consent from the study participants to ensure that they are completely cognizant of the study intentions, processes and possible risks if any. Additionally vis-à-vis ethical considerations, confidentiality and anonymity, would be discussed to elaborate on how they were met during the study.

#### **4.2. Trustworthiness of Data.**

##### **i. Data trustworthiness defined**

Establishing data trustworthiness is very crucial in research as it ensures the reader that, the research results are worthy. However, to determine whether the published results has trustworthiness is a difficult task more so that there is no prescribed method used to test it. The definition of trustworthiness relates to the quantitative evaluation of quality. This resonates well with Jackson (2003) who posited that, trustworthiness refers to “the process of establishing the validity and reliability of a qualitative research.” Validity and reliability are associated with the assessment of the rigour of a quantitative research (White, 2012). To sum up, trustworthiness refers to the degree to which, the research outcomes are a true reflection of the phenomena under study.

The process of critically analyzing qualitative research does not require rigid judging of the cohesion to the regulations or the explicit prescribed standards rather it is a procedure of considering the several features of the study with the aim to establish their relevance to the purpose and background of the study (Curtin & Fossey, 2007). Even so there is no consensus on the paramount method to evaluate a narrative investigation. The development of many criteria for evaluating both procedures and products of qualitative study signifies evidently

that there is no prescriptive method to this kind of investigation. That is, there is no recipe nor strict formula. This is so because there are different authentication criteria that can be more relevant to some situations and not suit others. Furthermore, the landscape in which the conclusions are done is constantly changing and it is portrayed by flexibility relative to constancy and closure (Hammell, 2005). There are numerous guides that had been developed to help the researchers in qualitative research to appraise the published results and assist the investigators to inspect and define their significance. With that, this research considered the following to authenticate the data collected.

To ensure the authenticity of the study it is imperative to discuss clearly the strategies the researcher used when conducting the study. There are different strategies that are used to authenticate data. These are as follows, thick description member checking, collaboration, transferability, reflexivity, transparency, ethics and triangulation. The above strategies will be discussed below:

#### ii. Thick description

This refers to a detailed description of the process of research and the outcomes so that the reader can fully comprehend and understand how the research was carried out (Earnest, 2020). This process includes a comprehensive description of the phenomenon being investigated such that the unfolding events of the study can be fully comprehended (Stahl & King, 2020). For this method, the investigator is required to indicate the rationale for the method chosen, explain and document fully the data collection methods, indicate the details of the primary data produced and lastly show the methods of data analysis (Rizal, Apriliani, & Permana, 2021).

#### iii. Member checking

This is another method which the researchers use to authenticate the trustworthiness of the study. When using this method, the researcher involves the participants during data analysis

stage (Candela, 2019). The researcher grants the participants the chance to read and make comments concerning the data collected and the research outcomes. The main purpose is to find out whether the analysed data is in line with the participants' experiences (Motulsky, 2021) (Thomas, 2017). This is very important because it will provide the researcher with the assurance that, their data analysis techniques are accurate, fair and valid when the outcomes are reviewed by the participants.

#### iv. Collaboration

The extent to which the researcher collaborates with the participants has a greater impact on the achievement of the research objectives. The level of collaboration between the researcher and the participants immensely impacts the trustworthiness of the data. In this collaborative partnership, the participants actively participate in the planning and carrying out of the study and data analysis. When this is done the research is considered to have a high level of collaboration. This type of collaboration is not commonly carried out (Caraballo & Lyiscott, 2020).

#### v. Transferability

Generally qualitative research findings do not generalize unlike in the quantitative research especially when measuring external validity. Nonetheless, to measure the validity and the reliability of the results of the qualitative study ought to be transferrable (Daniel, 2019). That is those who read the published article should be able to establish whether the study outcomes can be practical to other situations from the comprehensive report delivered (Stahl & King, 2020).

#### vi. Reflexivity

This refers to the researcher acknowledging that she actively participates in the study throughout the entire study process and as such significantly influences how the research develops and actively engages the participants (Dodgson, 2019). The researcher should take

note of their personal bias, expectations and beliefs that they hold as these may impact the study process. Being explicit the investigator tries to ensure that the study outcomes represents the participant's views instead of the researcher's viewpoint (Olmos-Vega, Stalmeijer, Varpio, & Kahlke, 2023). In the core of this, the researcher need to be in the fore front about the reflexive process to show their change in attitude that was brought through interaction with the participants (Dodgson, 2019). Methods used to show reflexivity are; journaling by the researcher to observe the effect of their interactions and the way they think, changing their idiosyncratic proficiencies to prospect to enhance the study findings.

#### vii. Transparency

This involves the sharing of the information about the methods that are going to be used in the research furthermore it includes the data collection techniques and how the data will be analysed (Humphreys, Lewis Jr, Sender, & Won, 2021). Transparency is concerned with the sharing of interview scripts, filed notes and other related documents that were used during data collection with the participants and other parties who have interest in the research. Transparency enhances rapport and build trust between the participants and the researcher (Humphreys, Lewis Jr, Sender, & Won, 2021).

To ensure validity and reliability of the data collected, the researcher shared the information about the methods of data collection to be used and how the data will be analysed. The researcher also ensured the participants that, there are no potential harmful risks associated with the research.

#### viii. Ethics

To ensure that the research was trustworthy, the researcher sought for permission to study from the management of the colleges under study and was granted. The UREC ethics committee of the University also granted the researcher permission to carry out the research after a thorough review of the ethical forms. In congruent with the above, Humphreys, Lewis

Jr, Sender & Won (2019) posited that, “to build a more trustworthy research, it is important to engage with the broader principles of ethics”. During the research process, the researcher maintained integrity and respected the participants and no participant was coerced in to participating in the research.

ix. Triangulation

Triangulation in research is used as a method of validating the results to ensure that the research is credible, reliable and accurate. This method is used to ensure that the objectives and the aims of the research are achieved (Santos, Ribeiro, Queiroga, Silva, & Ferreira, 2020). This research used a mixed method research. It used a combination of both quantitative and qualitative research designs. As qualitative research is not numerical in nature it is imperative to use methods that will guarantee transparency and reliability to the data collected and refine it when planning and during implementation. For triangulation purposes, the researcher used focus group interviews. This helped in ensuring a comprehensive understanding of the phenomena from different perspectives.

x. Confirmability

Conformability in research is in line with the endorsement of the research findings by other researchers. It is carried out when interpretations and data of the initial researcher show that they are a consequent of the presented data. This will be shown by the logical presentation of themes which will show the reader how the themes were deduced.

xi. Sampling techniques

In order to ensure that the data is credible and trustworthy, the participants chosen for the research were chosen because they were familiar with the subject as the researcher expected that they would provide authentic information.

xii. Data recording and storage

To ensure credibility and safety of the data collected, the recorder was used during the data collection period when the primary data collected and was kept safely in a lockable cabinet.

xiii. Back up processes

Back up processes to ensure data safety, integrity, protection against the loss of data were used. Data was stored in lockable cabinets so as to avoid compromising the information collected.

xiv. Confidentiality and anonymity

Pseudo names for the participants were used in order to ensure that the data collected is not traced back to the owner. The participants were also ensured of confidentiality in order to ensure that there is trust between the researcher and the participants.

To sum up, this section discussed how the mixed method study was implored in the study. The focus of the study was on curriculum framework, curriculum alignment and lecturer involvement during the process of curriculum development. It further discussed how the data will be reported and how trustworthiness of data was maintained during data collection. Data reporting would be done in table format and thematically. It also discussed the significance of data trustworthiness in qualitative research. The data trustworthiness tools discussed included first, thick description which involves a detailed description of the research process and outcomes for easier comprehension of the study second, members checking, a tool which grant the participants the opportunity to read and comment on the findings of the study, additionally, collaboration, this involves partnering with the participants during planning and data analysis phase. Transferability accords the readers the chance to establish whether the results are practical to other situations. Reflexivity was explained as to how the researcher should take

note of researcher bias, expectations and beliefs so that they should not influence the outcomes of the study. Transparency in research involved information sharing. Ethical considerations were used as a tool to ensure trust and protection of the participants in the study. Triangulation was discussed as a way of validating the results in order to ensure reliability and accuracy of the results. Finally, Confirmability dealt with logical presentation of the themes, sampling techniques to ensure credibility and trustworthiness of data. Data recording and storage was discussed to ensure safety of the data collected and finally back up process ensured that data is not lost in cases of unforeseen situations. Confidentiality and anonymity ensured the protection of the participants from harm.

#### **4.3. Reliability and Validity of Data**

Establishing the reliability and the validity of the study results in research is extremely crucial. The study was a mixed method study, it had two sets of questionnaires. There were the open ended and the closed ended questionnaires. The reliability and the validity of the data will be discussed. Reliability refers to how consistent and stable the data collection tools are. Furthermore, it evaluates the level at which similar results would be found if a similar measurement could be repeated and the same situations are maintained. To support the above, Bannigan & Watson (2009) posited that, reliability refers to the stability of a measurement scale, that is, how far it will give the same results on separate occasions. It can be assessed in different ways; stability, internal consistency and equivalence. It should be noted that when conducting reliability tests there will always be a random error. The random error can occur when the participant is distracted when answering the questionnaire. In this study the reliability of the questionnaire was established by the use of the Cronbach Alpha reliability test. A questionnaire with ten (10) closed ended questions were used with a likert scale with a five point answer range in which the representation was as follows: 1: Strongly agree 2: Agree 3: Neutral 4: Disagree 5: Strongly Disagree. This questionnaire was given to ten participants

before it was distributed to the population under study. The respondents were expected to choose the answer which they believed represents their opinion. The results of the pilot study gave a reliability score of 0.95. This score indicated that the questionnaire is reliable. The questionnaire was later answered in two parts, through physical distribution and telephonically.

According to Bannigan & Watson (2009) validity refers to the “meaning and interpretation of a scale.” There are various ways of testing the validity of data in research. To establish the validity of data in this study, the data was analysed by the use of audible methods where the initial codes were extracted from the original data in the interview scripts and recordings. The categories resulting from the preliminary codes were placed subsequent to the preliminary codes. This helped the readers to realize how groupings were done from the initial codes. This was presented in tables for easy understanding by the reader. The themes were searched prior naming them.

#### **4.4. Results Reporting.**

##### ***4.4.1. Overview of Demographic Data.***

Eighty nine respondents participated in the current study. The tables below show the distribution of the participants according to their gender, age and educational level and no of years in curriculum development.



**Table 4**  
*Gender*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	25	26.6	29.1	29.1
	Female	59	62.8	68.6	97.7
	Prefer not to mention	2	2.1	2.3	100.0
	Total	86	91.5	100.0	
Missing	System	8	8.5		
Total		94	100.0		

- The majority of respondents identified as Female (62.8%).
- The Male category represents a significant but smaller portion of respondents (26.6%).
- A small percentage of respondents (2.1%) preferred not to mention their gender.
- The cumulative percent indicates that 97.7% of respondents provided gender information, with the remaining 2.3% either not mentioning their gender or having missing data labeled as "System."

It is important to note that the analysis is based on the available data and does not account for potential biases or limitations in the survey methodology. Additionally, the "System" category with missing data might require further investigation to understand the reason for the missing responses.

**Table 5***Age*

		<b>Age</b>			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	35-40	3	3.2	3.5	3.5
	40-45	61	64.9	71.8	75.3
	45-50	21	22.3	24.7	100.0
	Total	85	90.4	100.0	
Missing	System	9	9.6		
Total		94	100.0		

**Interpretation:**

- The majority of respondents fall within the age group 40-45 (64.9%).
- A smaller proportion falls within the age group 45-50 (22.3%).
- The smallest proportion is in the age group 35-40 (3.2%).
- The cumulative percent indicates that 75.3% of respondents provided information on their age group, with the remaining 24.7% either not mentioning their age group or having missing data labeled as "System"

The age in curriculum development is very significant as the older lecturers will bring experience regarding the relevance of the curriculum to the industry and the younger lecturers will be more knowledgeable in technology and thus strengthen the creativity and innovation aspect. This result indicate that most of the respondents are the age range of 45-50 and this suggest if they could be engaged in curriculum development they could bring with them positive inputs and thus develop a technologically adaptable curriculum.

**Table 6**  
*Educational level*

Educational level					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Degree	78	83.0	87.6	87.6
	Master's degree and above	11	11.7	12.4	100.0
	Diploma	0	0	0	
	Total	89	94.7	100.0	
Missing	System	5	5.3		
Total		94	100.0		

**Interpretation:**

- The majority of respondents have a Degree (83.0%), indicating completion of an undergraduate level of education.
- A smaller proportion of respondents have a Master's degree and above (11.7%).
- No respondents reported having a Diploma based on the provided categories.
- The cumulative percent indicates that 87.6% of respondents provided information on their educational level, with the remaining 12.4% either not mentioning their educational level or having missing data labeled as "System."

The level of education is key in curriculum development as it determines the quality of the curriculum in terms of relevance and efficiency. It is also key in determining the content coverage in both practical and theoretical knowledge. It further assist in the teaching and learning materials that are required during the implementation process. The result show that all

of the respondents have a qualification which is above Diploma and this suggest that all the respondents are qualified to develop a curriculum for the Diploma and Certificate level.

**Table 7**  
*No of years in curriculum development*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5-10	12	12.8	13.5	13.5
	10-15	46	48.9	51.7	65.2
	15-20	30	31.9	33.7	98.9
	31.00	1	1.1	1.1	100.0
	Total	89	94.7	100.0	
Missing	System	5	5.3		
Total		94	100.0		

**Interpretation:**

- The majority of respondents have 10-15 years of experience in curriculum development (48.9%).
- A significant proportion has 15-20 years of experience (31.9%).
- A smaller percentage falls within the 5-10 years category (12.8%).
- There is one respondent with 31.00 years of experience in curriculum development (1.1%).
- The cumulative percent indicates that 98.9% of respondents provided information on their years of experience in curriculum development, with the remaining 1.1% either not mentioning their experience or having missing data labeled as "System."

The more the length of time one engages in curriculum development the more the experience they attain in terms of relevance, quality, skills and knowledge. Longer period of time assist in the monitoring and evaluation. The results indicate that majority of the respondents are in the categories of 10-15 and 15-20. This shows that quite a high number of older lecturers are engaged in the curriculum development process and the younger ones are minimally involved. This may result in the curriculum not being technologically viable and lack creativity and innovation and the currency of the curriculum.

#### ***4.4.2. Findings.***

In this section the study results are showed in tables. After collection of data with the use of questionnaires and interview scripts. To answer research question one (RQ1) regarding the curriculum framework used during the development of technical and vocational education, a thematic analysis of the participants' understanding of the curriculum framework, its composition, policies used and the knowledge of the model used was done. The different people engaged during curriculum development and whether the curriculum would be relevant in the future was deduced. This would be followed by the analysis to answer research question two (RQ2) regarding the factors that are required during curriculum development so as to produce a quality curriculum. A thematic analysis of a quality technical and vocational education regarding its competitiveness and promotion of creativity and innovativeness was done. Additionally, the analysis of the research question three (RQ3) concerning the alignment of the certificate and the diploma curriculum in vocational education was accomplished. A thematic analysis on the coherence of the certificate and diploma curriculum its benefits and the factors that might hinder the alignment of the two curricula were executed. Finally the statistical analysis to answer the research question four (RQ4) regarding the level of engagement of the curriculum implementers during curriculum development was carried out.

The data show that there are divergent and convergent opinions concerning the responses of both the closed and open ended questionnaires the open ended questionnaires addressed the knowledge of the lecturers regarding the process of curriculum development. The findings concerning the curriculum framework, quality technical and vocational education and curriculum alignment was done through thematic analysis and the response rate was presented in tables.

#### ***4.4.3. Description of Questions.***

**Table 8**

*Response rate RQ1*

Question no	Questions breakdown	Responses	
		Lecturers	Curriculum developers
RQ 1	Curriculum frame work		
	• Curriculum description	89	6
	• Composition of the framework	89	6
	• Policies informing the framework	85	6
	• Models used during curriculum development	70	6
	• Reasons for choosing the model	70	6
	• Hindrances of the development of the curriculum framework plans.	80	6

**Table 9**  
*Response rate RQ2*

Question no	Questions	Responses	
		Lecturers and QAA officer	Curriculum developers
RQ2	Quality curriculum education		
	• Description of quality technical education	89	6
	• Factors to be considered in order to produce a quality curriculum	89	6
	• Competitive quality curriculum	89	6
	• Global competitiveness	89	6
	• Creativity and innovation	89	6

**Table 10**  
*Response rate RQ3*

Question no	Questions	Responses	
		Lecturers and QAA officer	Curriculum developers
Q3	Curriculum alignment		
	• Description of curriculum alignment	89	6
	• Alignment of certificate and diploma	89	6
	• Ensuring alignment of certificate and diploma alignment	89	6
	• Benefits of curriculum alignment	89	6
	• Factors that can hinder development of an aligned curriculum	89	6
	• Different people to assist in development of an aligned curriculum and how they are involved	89	6

**4.4.3. Research Question 1: In what ways can the Competency of the Technical and Vocational Curriculum Framework be enhanced?**

**Table 11**

*Thematic analysis on the understanding of the curriculum framework*

Initial codes	
Curriculum developers	<p>It is a structure, a guideline of curriculum development used by schools. It is an act of BQA which has ten levels starting from primary to higher education level.</p> <p>Programme structure. A layout. Competency levels. Formal structure; It is the documentation designed to guide schools in the development of their syllabus/ it is a learning outcome that define the content that is to be taught; The structure, it explains concepts that are to be taught; It is a structure that summarizes to depict educational standards created to define what to be offered to learners as a teacher and what the content to be learned; Organized learning standards that gives guidance for the content to be offered to the learners</p>
Quality officer	<p>Structure in which teaching and learning is based on; Programme structure. A layout. Competency levels. Formal structure; Layers of levels designed to suit the qualification; The structure, it explains concepts that are to be taught; Organized learning standards that gives guidance for the content to be offered to the learners</p>
Lecturers	<p>Modules that form a course outline Structure in which teaching and learning is based on; Layers of levels designed to suit the qualification; The structure, it explains concepts that are to be taught; It is an organized plan of learning. Outcomes that define the content to be learned in terms of clear definable standards</p>



<b>Initial codes</b>	
Curriculum developers	Standards that define what content of learning outcomes a student should know at the end of a learning period. Outlines of objectives exit outcomes content teaching methodologies and assessments. How a curriculum is set up. The foundation of curriculum. Align regulatory bodies, BQA; learning outcomes; a structure for guiding the curriculum to be taught, a guide on curriculum development informed by policies. A guide to be used when developing a curriculum. A standard document which guides curriculum development. The backbone of curriculum development process Programme structure. A curriculum framework is what guides us to develop a curriculum
Quality Officer	Outlines of objectives exit outcomes content teaching methodologies and assessments. How a curriculum is set up. The foundation of curriculum. Align regulatory bodies, BQA, Structure aligned international, levels of operational, includes layers of levels of competencies; It informs us of the policies to use during curriculum development, the model to follow, the competencies required in the programme, how the programme should be delivered; the exit level outcomes, it has the levels of competencies
Lecturers	I do not know but the background came from Germany and Scotland. It is a content designed to be offered to learners. It is characterized by learning standards entailing what learners should know and be able to do after learning has taken place. It is designed basing on the different needs of the learners and the industry. It is informed by the National Credit Qualification framework by the regulatory authority body BQA.

Categories of codes	<p>Structure, guide, course outline, modules forming a course outline. Programme structure. Structure based on teaching and learning. A layout. Competency levels. Documentation designed to guide schools. Structure. A learning outcome. Structure. Explains content to be taught. Structure. Formal structure, structure that summarizes, guide on curriculum. Organized learning standards guidance to modules to be taught. Standards that define content Outlines of objectives, set up of curriculum. Foundation of curriculum; content designed to be offered. Learning standards entailing what learners should know. Internationally aligned structure, guiding structure for curriculum development, and a guide, standard document guiding curriculum development, programme structure, layers of levels of competencies and learning outcomes. Guides us to develop a curriculum, informs of the models and policies to follow. Competencies required for the programme, delivery methods programme structure, layers of levels of competencies and learning outcomes. Informed by the authority bodies</p>
Themes	Curriculum construction. Curriculum components. Curriculum guidelines

**Table 12**

*Thematic analysis: composition of a Curriculum Framework: Curriculum Development Officers*

<b>Initial codes</b>	
<b>Curriculum Developers</b>	Teaching, assessment processes, the extent of the curriculum. A plan of set standards that defines the content to be learned. The framework should be clear of what learners should learn, values, attitudes, key learning areas, generic skills (key skills). Learning experiences simulations. Interlocking content which should which should entail- soft skills especially entrepreneurship skills training technical skills, training packages industry competency standards, assessments guidelines and approved qualifications; Level descriptors, and being able to know why each program is at that level assessment standards, modules and subjects teaching standards, programme level
<b>Quality Assurance officer</b>	Assessment criterion, credit values and how they are applicable at each level. Education levels, policies, regulations and requirements, regulations, policies and objectives, content, process of teaching and instructional modules needed to complete a course. Level descriptors which explains the different levels, objectives, aims required to achieve the curriculum.
<b>Lecturers</b>	It should contain, content, process and facilitating approaches /methods and techniques. It should contain components that include learning experiences, key skills, values, attitudes and key learning areas, teaching and learning areas and teaching and learning facilities. Expected outcomes of the

Initial codes	
Curriculum developers	Level descriptors, and being able to know why each program is at that level assessment standards, modules and subjects teaching standards, programme level
Quality Officer	Scope and syllabus. I do not know. Learning standards- entails what learners should know and be able to do after learning has taken place which produce a confident self-reliant and a responsible learner
Lecturers	Programme, progression paths/routes (both vertical and horizontal, employment opportunities upon completion. I do not know.

Categories of codes	Teaching, assessment processes; the extent of the curriculum; A plan of set standards that defines the content to be learned; Level descriptors, clarity programme level. Level descriptors, learning experiences, key learning areas, teaching and learning area. . Expected outcomes of the programme, credit values and levels. Teaching standards. Key learning areas. assessment criterion, Education levels, credit values; policies, regulations and requirements, regulations, policies; objectives; process of teaching; modules needed to complete a course; Level descriptors; objectives, aims. Curriculum. Scope; skill acquisition. Training packages.
Themes	Instructional design. Statutes, competency level

**Table 13***Thematic analysis of policies informing curriculum development in Botswana*

Initial codes	
Curriculum developers	TVET policy, Education and Training Sector Strategic Plan (ETSSP), Vision 2036, RNPE, Education for Kagisano, UNESCO strategy, HRDC. National Policy on Vocational and Education and Training. ETTSP, Revised National policy on Education National Policy on Education. Education for Kagisano. Education Act.
Quality Officer	TVET policy, ETSSP, Vision 2036, RNPE, Education for Kagisano, UNESCO strategy, HRDC. National Policy on Vocational and Education and Training. ETTSP, Revised National policy on Education National Policy on Education. Education for Kagisano. Education Act
Lecturers	Vocational training act of 1998. The vocational education and training policy of 1997. Revised national policy on education. Not sure, not sure, national Development plan, Vision 2036, HRDC labour analysis reports, Maitlamo policy. Do not know, to prove education to the individual. No answer. National Policy on education and training. Do not know. ETTSP, Vision 2036, NDP11, Human Resource Development Council policy Education policy Vision 2036. The Revised National Policy on Education ( <i>RNPE</i> ) There is no unified policy to guide the development of training and there are no clear philosophies and goals for TVET

Categories of codes	TVET policy, ETSSP. Vision 2036, RNPE, Education for Kagisano, UNESCO strategy, HRDC. National Policy on Vocational and Education and Training. ETTSP, Revised National policy on Education National Policy on Education. Education for Kagisano. Education Act. No answer, Not sure
Themes	Educational policies. Legal statues

**Table 14***Thematic analysis of models used during curriculum development.*

Initial codes	
Curriculum Developers	<p>Dual system model, DACUM, Outcome based education, Learner centered, Do not know, Develop A Curriculum. Tripartite NCQF, NCQF,</p> <p>Process model as it focuses mainly on activities carried out by students and the efforts of those activities thereafter on the students.</p> <p>Learner centered model. Learner centered model. Develop a curriculum</p>
Quality Assurance Officer	No answer. 80-20 model in which 80 % is practical and 20 % theory
Lecturers	<p>No answer. Model proposed by Dewey in 1915 And this is the experiential learning model which is learning by doing. Learner-centered/ outcome-based, Germany and South Africa. Countries which long started TVET. No comment 80-20 model in which 80 % is practical and 20 % theory, No answer, Model proposed by Dewey in 1915 And this is the experiential learning model which is learning by doing. Process model as it focuses mainly on activities carried out by students and the efforts of those activities thereafter on the students. Learner centered model. Learner centered model. Develop a curriculum</p>

Code	80-20; Outcome based education, No answer, DACUM
categories	Learner centered model, experiential learning model, Process model, Learner centered model. Learner centered model
Theme	Constructivist model



**Table 15**  
*Thematic analysis on reasons for the chosen model*

Initial codes	
Curriculum developers	OBE {Process model} was used because it is used for service inclined specific fields where graduates have to apply knowledge, skills and attitude on a daily basis in the field. : suggested benchmarking with other reputable universities which offer the similar programmes, the model is an outcome based model which allows learners to actively participate in learning. It allows for benchmarking of the graduates so that they can be ready for market immediately they complete their studies and as employees. Because TVET allows students to learn by practicing and applying concepts, ideas and theories. DACUM was used because the founder of TVET recommended the model (SCOTISH and Koreans).
Quality Assurance officer	No answer
Lecturers	Learner centered. The model is an outcome based model which allows learners to actively participate in learning.

Categories of codes	Market ready, hands on, application of knowledge
Themes	Entrepreneurial skill acquisition

**Table 16***Thematic analysis on stakeholder involvement in curriculum development*

Curriculum developers	Curriculum development groups (Experts- who are lecturers of the specific subjects. Industry personnel: experts who practice in specific fields on a daily basis as their business and the programme advisory groups experts from the industry and higher education schools such as university. Lecturers and the curriculum developers, lecturers and stakeholders, ETPS and other relevant stakeholders. Examples of phrases:
Quality Assurance officer	Lecturers, Industry experts,
Lecturers	<i>Because of their expertise, some lecturers is due to their experience on the job, some have higher qualifications. Some stakeholders especially industry people are knowledgeable in new technologies</i>

Categories of codes	Subject experts, industry experts, experts who practice
Themes	collaboration with stakeholders

**Table 17**

*Thematic analysis for future prospects of TVET in Botswana and how it can be enhance*

Initial codes	
Curriculum developers	More technical skills and business oriented. Yes, it will still be relevant but can be adjusted to meet the needs of the country, yes especially for the service industry but with enhanced technology capacitation of both the curriculum developers and leacturers
Quality Assurance officer	Yes, it will still be relevant but can be adjusted to meet the needs of the country, yes especially for the service industry but with enhanced technology. Competency based education
Lecturers	More focus on hands on rather than theory, more practical, relevant to the industry, country needs, competitiveness and production of market ready graduates. Alginment with the industry. Feedback from the from the leaners

Categories of codes	<b>Business oriented</b> , relevant to industry, Meet the needs of the country, capacitation of the curriculum developers and lecturers. Student feedback
Themes	Competitive curriculum

**Table 18**

*Theme analysis: What might assist or hamper the development of the curriculum framework plans*

Initial codes	
Curriculum developers	Financial and physical resources... Government red tape and constant change of management (leadership) No reviewing of policies and non-implementation of policies.
Quality Officer	Lack of funding slow pace at which TVET is developing in Botswana
Lecturers	Engagement of unqualified lecturers in the development of the programme. Financial and physical resources

Categories of codes	Financial and physical resources, unqualified staff, lack of funding, constant change of management. Policy review. Non Implementation of policies
Themes	Funding. Human resource, Policies

**4.4.4. Research Question 2: What steps can the Technical and Vocational Sector consider to effectively ensure the development of a Quality Curriculum?**

**Table 19**

*Thematic analysis for how the lecturers understand a quality technical vocational education*

Initial codes	
Curriculum developers	There should be provision of teaching space (classrooms, workshops and support. The entry requirement for the learners should be looked into. There should also be training for the teaching personnel. . It should be a curriculum that responds to the needs of the industry and the growth of the economy. It is an education that is fit for purpose developed through education and industry sector. It is a curriculum that ensures the entire academic process and standards are followed and its mandate is based on skills and knowledge acquisition. A curriculum that is in line with the industry needs.
Quality Assurance officer	A quality vocational education curriculum should have relevant content and detailed teaching and learning processes, it should also contain instructional materials and teaching materials, evidence collection methods should be detailed. A curriculum that is in line with the industry needs.
Lecturers	It will be an education where the graduates produced get employed and or start their own businesses within a short period of time or after the completion of the programme. It should have a regulatory body to scrutinize and review all the policies and there should be a quality. A

Initial codes	
Curriculum developers	It is a curriculum that fully engages the stakeholders. It is a curriculum that is able to meet all the requirements of the industry. It should produce artisans that that can work anywhere in the world. A curriculum that produces market ready artisans' tor the nation. It is the one that is measurable and ensures quality outcome.
Quality Assurance officer	It is the one that produce industry ready graduates. It is an inclusive education that encourages creativity and innovation. A curriculum that is achievable and outcome based. It is a good one it is a model of imparting education that will be beneficial to the end user which is the industry. It is an education that will develop all the attributes, skills acquisition, produce self-reliant students who can fit in all innovative and creative skills and impart long life skills.
Lecturers	A curriculum that is in line with the industry needs. Assurance sound TVET model. A quality vocational education curriculum should have relevant content and detailed teaching and learning processes, it should also contain instructional materials and teaching materials, evidence collection methods should be detailed. There is so much quality in the program problem is lack of resources. Establishing and improving teaching and learning processes that ensure the final product , the final product referring to the student who after completion of studies meets quality standards required globally to offer quality services

Categories of codes	<p>The graduates produced get employed, start their own businesses, short period of time. Regulatory body to scrutinize and review all the policies. Relevant content and detailed teaching and learning processes. Curriculum that responds to the needs of the industry and the growth of the economy. Is fit for purpose. In line with the industry.</p> <p>Engages the stakeholders. Meet all the requirements. That that can work anywhere in the world. Market ready artisan's for the nation. That produce industry ready graduates. Beneficial to the end user. Creativity and innovation. Innovative and creative skills.</p>
Themes	Employable graduates, globally competitive. Relevance

**Table 20**

*Thematic analysis of the factors that should be considered in order to produce a quality curriculum*

Initial codes	
Curriculum developers	Assessment procedures and types and resources. The country needs, the industry and stakeholders. Connect knowledge to life outside the school. The sequence of curriculum content. The rationale behind the curriculum, needs assessment exit outcomes, stakeholder consultation. Industry needs (local, regional and international) lecturer qualification resources, quality of teacher availability of resources.
Quality Assurance officer	The needs of the country, lecturers' qualification and availability of resources. Training of the curriculum developers experts in the field should be engaged fully_ needs of learners how to quality assure the curriculum, philosophy, engaging relevant stakeholders. Detailed needs analysis
Lecturers	We need to look at industry needs, curriculum of other institutions of higher learning. Curriculum alignment. The needs of the industry and the quality of the learners and the technology, entry requirements, resources and entry requirements and skills mismatch. The level of the study technology and level thereof. The needs of the industry. (Both nationally and internationally. Needs analysis, relevant policies and industry involvement. Budget, personnel instructional material and, selecting learning goals designing knowledge and delivery modes



Categories of codes	<p>Industry needs; curriculum of other institutions of higher learning technology, resources; level of the study technology; Assessment procedures; types of resources; country needs, the industry and stakeholders; The rationale behind the curriculum, needs assessment exit outcomes; The needs of the industry.( both nationally and internationally. relevant policies and industry involvement; engaging relevant stakeholders, , engaging relevant stakeholders, consultation with stakeholders</p>
Themes	Stakeholders needs, national needs; Resources; technology

**Table 21**  
*Thematic analysis of a quality competitive curriculum*

Initial codes	
Curriculum developers	Focus on promoting lifelong learning and acquisition of skills on aligning educational curriculum to the needs of the economy. Resources and technology. Industry needs. Learning objectives, content, course of studies. Time Allocation teaching and learning experience. Availability of resources and there should be room for getting feedback from the learners
Quality Assurance officer	The needs of the industry which is the employer and has to be compared regionally and internationally. It should focus on global inclusiveness when it comes to the skills, knowledge and competencies
Lecturers	Lifelong activities of the learners, technology and ideology and knowledge. It should keep abreast with the developments in the industry. Philosophy, life activities of the students, technology and knowledge and ideology, providing skills and relevant attributes to the students. It should focus on practical for learners. More industrial attachment as compared to theory. It should strictly outcome based. Flexibility, variability. Requisite skills and knowledge. New trends in the industry. Learner acquisition of the concepts. Industry satisfaction. Skills development. Accommodate all learning styles. Aligning with the industry needs not working in silos. <i>important and relevant content</i>

Categories of codes	<p>Impart Life skills; technologically advanced; developments in the industry, life activities of the students; provide relevant skills; global inclusiveness of skills, knowledge and competencies; Promote lifelong learning. Aligned to the needs of the economy; it should be practical; more time for industrial attachment; New trends in the industry; requisite skills and knowledge; accommodative</p>
Themes	Competiveness; curriculum alignment; Dynamic curriculum; life long

**Table 22**

*Theme analysis ensuring that the curriculum developed is globally competitive*

Initial codes	
Curriculum developers	Engagement of stakeholders. Conducting comparability matrix against global and regional bodies benchmarking, benchmarking. Benchmark with other reputable institutions in the world. Before the development or during there should be comparability locally, regionally and internationally. Successful learners Confident individuals. Responsible citizens capable of having positive impact in the economy
Quality Assurance	Benchmarking with local, regional and internationally. By aligning the programme with the needs of the country in order to produce quality workforce. Comparability matrix should be conducted. Benchmarking.
Lecturers	During curriculum development there is a need for benchmarking locally, regionally, and internationally. Comparative studies of programs and qualifications. Rechecking the standards. Benchmarking with relevant stakeholders. By engaging the learners in exchange programmes with regional academic institutions. Benchmarking with other countries. Benchmark and adopt what can work locally due to different variables like culture. The content designed will at the end produce :Successful learners Confident

Category of codes	<p>Benchmarking locally, regionally, and internationally; Benchmarking with relevant stakeholders; Conducting comparability matrix against global and regional bodies benchmarking; Comparability matrix should be conducted; Benchmarking. by engaging the learners in exchange programmes with regional academic institutions; <i>Confident Successful learners Confident individuals. Responsible citizens</i></p>
Themes	<p>Benchmarking; Learner exchange programmes; competitive human resource</p>

**Table 23***Theme analysis; how the current curriculum promote creativity and innovation*

Initial codes	
Curriculum developers	Through integrated project, research and practical modules and through soft skills such entrepreneurship. Technology and through research which is encouraged but not emphasised. It sets minimum attainable objectives and does not limit candidates to go beyond. It is learner centered. It encourages practical work and the use of ICT in teaching. Use of ICT. Use technology and attachment in the industry. Outcome-based which is teaching a method used in most TVET institutions Allows students to express themselves freely, in contrast to the traditional method of teaching
Quality Assurance officer	There is a need for proper planning and competent skills. The manner in which it is assessed opens room for creativity
Lecturers	<p>Creativity is restricted because of budget. Inclusion of integrated project in all the curriculum development. There is a lack of promotion of creativity and innovation because the current curriculum is outdated. By using technology in learning and teaching. Incorporation of different modes of teaching. Use of current technology Ensure that curriculum developed move away from the traditional way and include key skills especially entrepreneurship which incorporates business related subjects.</p> <p>There is no promotion of creativity and innovation because students spent most of the time in the classrooms than I in the workshops where they are supposed to be doing practical work. That is there is limited practical</p>

Initial codes	
Curriculum developers	. By using technology in learning and teaching. Incorporation of different modes of teaching. Use of current technology Ensure that curriculum developed move away from the traditional way and include key skills
Quality Assurance Officer	Use technology and attachment in the industry. Outcome-based which is teaching a method used in most TVET institutions Allows students to express themselves freely, in contrast to the traditional method of teaching
Lecturers	Work. The curriculum does not promote creativity it is not learner centered. It needs to be reviewed. Creativity and innovation is very limited. No creativity the current curriculum is obsolete. It does not because every time there is bottle neck of lack of funds.

Categories of codes	Integrated project, research and practical modules; restricted creativity, lack of promotion of creativity; By using technology in learning; move away from the traditional way and include key skills especially entrepreneurship; Use of ICT; There is no promotion of creativity and innovation; The curriculum does not promote creativity it is not learner centered; It encourages practical work and the use of ICT in teaching; Use technology and attachment in the industry; The manner in which its assessed opens room for creativity; does not because every time there is bottle neck of lack of funds; Allows students to express themselves freely
Themes	Insufficient creativity and innovation; use of ICT; Assessment methods

#### 4.4.5. Research Question 3: How does Misalignment between Certificate and Diploma

##### *Curriculum affect learner progression among the levels?*

**Table 24**

*Theme analysis understanding of an aligned curriculum*

Initial codes	
Curriculum developers	A well-defined layout curriculum. A continuation of modules and programme which has systematic progression. A curriculum that address new trends in a particular industry. An aligned curriculum is the one that enrolls the right candidates and seamlessly channels them through all its levels and ultimately delivers them to the relevant industry where their performance will be appreciated. A curriculum that fits in all levels harmoniously. The curriculum is not aligned. There has never been a time where the Diploma offering and Certificate offering curriculum development officer had worked together to produce a curriculum.
Quality Assurance Officer	It is the curriculum that produces for the economy that is, it should be informed by the needs of the economy. It is a curriculum that meets the need of the industry. It also has clear pathways in which a learner can easily move from certificate to Diploma and ultimately degree
Lecturers	It is a curriculum that is developed by both industry and the curriculum developers. A curriculum that is coherent, consistent and has growth



Initial codes	
Curriculum developers	Students taught using the same technology, resources, It is a curriculum that meet the needs of the industry. It also have clear pathways in which a learner can easily move from certificate diploma and degree. Students taught using the same technology, resources, modules used in the industry. It should be correct outcomes, the teaching methods should be clear assessments and practical activities should be consistent. The one that is aligned with industry and new trends in the environment. <i>When various parts of the course fit together, which in turn promotes effective learning and delivery considering characteristics and needs of learners</i>
Quality Assurance Officer	A curriculum that aims to ensure that it abides by its curriculum structure, consistently at all time. It contains, teaching methods and standards. An aligned curriculum is balance in all aspects like teaching assignment and outcomes. A curriculum that is addressing the needs of the industry and properly assessed.
Lecturers	Methods of assessment. A curriculum that allows for both lateral and vertical progression. A curriculum should be aligned to the needs of the industry and the new technology. It should be conversant with what is happening globally for some students to be competitive. A curriculum that should be consistent to the intended outcomes and the principles and standards must be followed.

Categories of codes	Developed by both industry and the curriculum developers; coherent, consistent and has growth methods of assessment; allows for both lateral and vertical progression; modules and programme which has systematic progression. A curriculum that fits in all levels harmoniously; It also has clear pathways; clear pathways; learner can easily move from certificate diploma and degree. be aligned to the needs of the industry and the new technology; be conversant with what is happening globally for some students to be competitive
Themes	Coherent, harmony;

**Table 25***Theme analysis; alignment of curriculum at Certificate and Diploma*

Initial codes	
Curriculum developers	There is minimal alignment it is only that in Botswana people confuse Technical Vocational Education with Higher Education. Technical Vocational education is under financed. All strategies done at certificate level must be similar to those that are at Diploma level. They are not aligned because the developers are housed at different ministries and there is no synergy. Currently there is no synergy between the two.
Quality Assurance Officer	Not sure
Lecturers	There is no alignment even progression from one level to another is not very clear and easy. There is minimal alignment. The programmes are not clearly aligned. No alignment. It is partly aligned. There is no alignment. There is no alignment. There is no proper alignment. There is no alignment. No alignment. No alignment. Not aligned. Certificate is well aligned just that it's not delivered exactly how it should be. There is still a mismatch of learners with the industry. Learners are still reluctant to be self-employed though TVET curriculum equips them with self-reliance skills

Categories of codes	not aligned, no synergy; no alignment; programmes are not clearly aligned; progression from one level to another is not very clear and easy; partly aligned; no alignment; business curriculum is aligned; Not aligned
Themes	Curriculum misalignment, minimal alignment

**Table 26**

*Theme analysis: ensuring that Certificate and Diploma curriculum are aligned*

Initial codes	
Curriculum developers	<p>Involve stakeholders. Collaboration between the developers both at Certificate and Diploma level. Proper collaboration between the developers at both levels. Use of lecturers who teach at both Diploma and Certificate. Engage all the stakeholders at the design. Botswana Qualification Authority should lead the developers throughout the whole process No answer. Harmonizing curriculum development.</p> <p>Collaboration between both developers at certificate and Diploma is the one that has passed through all the stakeholders, especially spade work staff. The one that is aligned with industry and new trends in the environment. <i>Ensuring that during delivery there is consistency between the intended outcomes as specified in the curriculum</i></p>
Quality Assurance Officer	Ensure they are developed in line with the National curriculum qualification framework.
Lecturers	<p>Being consistent with the Botswana Qualifications Authority Framework and ensure that there is coherence between the curriculum and the learning outcomes of both levels. No answer. The curriculum developers should be in one Ministry and proper monitoring and evaluation of the processes starting from development, delivery and quality assurance</p>

Categories of codes	<p>Being consistent with the Botswana Qualifications Authority Framework;</p> <p>coherence between the curriculum and the learning outcomes of both levels;</p> <p>Ensure they are developed in line with the National curriculum qualification framework. Use of lecturers who teach at both Diploma and Certificate;</p> <p>Involve stakeholders; Harmonizing curriculum development; Engage all the stakeholders at the design; Proper collaboration between the developers at both levels.</p>
Themes	Consistency, Collaboration; Stakeholder involvement

**Table 27***Theme analysis benefits of curriculum alignment*

Initial codes	
Curriculum Developers	It will produce quality graduates. It will improve the quality of human resources and grow the economy due to quality workforce as such the industry will grow and there will also be no skills mismatch. The changing technology needs of the industry and the learners. There will be proper articulation of the curriculum from certificate to Diploma. Better progression
Quality Assurance Officer	Transference of credits. No duplication of content, for easier continuity and easy transition among the levels. Fit for purpose. Meeting the needs of the society. For easy continuation of the learners from one level to another. To ensure consistent quality outcomes. It brings cohesion at various levels and ease seamless transition. It encourages creativity and innovation. Easy progression from one level to another. Easy transition. Industry satisfaction. It might help in attainment of skills and competencies.
Lecturers	There will be an easy path way from the lower level to higher level. No repetition of content. It will also meet the needs of the industry. Better quality and knowledgeable students also job ready. <i>Prepares students to acquire the necessary exposure and knowledge of the industry thus reducing chances of a mismatch</i>

Categories of codes	<p>quality graduates; quality of human resources; grow the economy; quality workforce; no skills mismatch; proper articulation of the curriculum; Transference of credits; No duplication of content; easier continuity and easy transition; Better progression; cohesion at various levels; Easy progression; . Easy transition; Industry satisfaction; easy path way; No repetition of content; meet the needs of the industry; better quality and knowledgeable students also job ready</p>
Themes	Competent human resource. Transition



**Table 28**

*Theme analysis: Factors that might hinder the development of an aligned curriculum*

Initial codes	
Curriculum developers	<p>Collapse of the collaborative opportunities with the stakeholders during curriculum development may lead to not addressing their needs.</p> <p>It can be hindered by fragmentation of developing and delivery agencies. Overlooking that technical vocational education is costly and exclusion of industry in curriculum planning activities by the government agencies dealing with TVET. Development without inclusion of stakeholders</p>
Quality Assurance Officer	No standard framework. Lack of funds, non-involvement of the stakeholders
Lecturers	<p>Lack of knowledge about the requirements of BQA, High staff turnover.</p> <p>No buy in by management. Budget constraints. The use of unskilled people in during curriculum development. Lack of resources... Lack of funds lack of resources. No accredited staff. Wrong managers of the curriculum team, lack of resources. <i>Failure to offer professional development to curriculum developers. Lack of both relevant human resources and physical resources</i></p>

Categories of codes	<p>Fragmented structures; finances; exclusion of stakeholders; Lack of knowledge about the requirements of BQA; High staff turnover; Budget constraints; use of unskilled people; No standard framework; Lack of resources; Lack of funds; non-involvement of the stakeholders; wrong managers of the curriculum; No accredited staff. lack of resources; Failure to offer professional development to curriculum developers; <i>Lack of both relevant human resources and physical resources</i></p>
Themes	Curriculum standards; Funding; Up skilling;

**Table 29**

*Theme analysis: different people to assist so as to develop an aligned curriculum and how are they involved*

Initial codes	
Curriculum developers	Lecturers and stakeholders and those who have an education background. Programme development group industry. Teaching staff. Stakeholders both lecturers and industry. Industry to give their needs. BQA to check the standards. Programme developers they guide. BQA. Ensure programme alignment with the standards. Lecturers, stakeholders' experts on the field and lecturers. Educators and relevant stakeholders from the industry
Quality Assurance Officer	Curriculum developers, lecturers, and school managers. Stakeholders to check the alignment. School lecturers to check gaps, come up with teaching methods and offer recommendations. The lecturers should be involved at the initial stage of development, quality assurance officer and regulatory bodies
Lecturers	The curriculum development group to assist with the model to be used and modules to be included. The leadership to avail the funds. Curriculum developers, industry experts and curriculum implementers. Stakeholders. Lecturers, stakeholders and BQA. Practitioners at colleges. Lecturers as implementers. Industry stakeholders. Lecturers assist in developing the programme and coming up with teaching

Categories of codes	Curriculum developers, <b>lecturers</b> , and school managers; <b>lecturers</b> ; <b>Lecturers</b> with educational background; <b>lecturers</b> and <b>stakeholders</b> ; <b>industry experts</b> ; <b>curriculum implementers</b> <b>lecturers as implementers</b> . <b>Stakeholders</b> . <b>Lecturers</b> , <b>stakeholders</b> ; <b>Lecturers</b> ; <b>Lecturers</b> ; Programme developers; <b>Lecturers</b> , <b>stakeholders</b> ; <b>lecturers</b> ; <b>relevant stakeholders</b>
Themes	Curriculum implementers and stakeholders

**4.4.6. Research Question 4: How can the Involvement of Stakeholders benefit the Botswana Technical and Vocational Education?**

**Table 30**

*Implications of stakeholder involvement in curriculum development*

Stake holder involvement implications	SA	A	N	D	SD	comment
1. Informs the teaching and learning	74	24	2	0	0	agree
2. As part of the curriculum development process lecturers will be motivated during teaching and learning	34	66	0	0	0	agree
3. Encourages constructive criticism	48	43	9	0	0	agree
4. Encourages stakeholders to be able to come up with recommendations during development	63	29	8	0	0	agree
5. Has positive impact in curriculum planning implementation and evaluation	51	37	13	0	0	agree
6. Reduces skills mismatch	41	46	13	0	0	agree
7. Offers information that is relevant to other needs	49	39	12	0	0	agree
8. Are equipped with skills and information required in the industry	45	46	9	1	0	agree
9. Are expects in the designing of the teaching materials	34	56	10	0	0	agree
10. Ensure correct implementation of the curriculum	24	55	21	0	0	agree

**Interpretation:**

- Generally, stakeholders seem to have a positive perception of the implications of their involvement in curriculum development.
- Most respondents strongly agree or agree that stakeholder involvement informs teaching and learning, motivates lecturers, encourages constructive criticism, and has a positive impact on curriculum planning and implementation.
- There is variation in responses regarding stakeholders being equipped with skills required in the industry and ensuring the correct implementation of the curriculum, with some neutral and disagree responses.

This information provides insights into the perceived effectiveness and impact of stakeholder involvement in curriculum development. Furthermore, analysis or qualitative research may help explore the reasons behind specific responses or identify areas for improvement

**Table 31**  
*Descriptive statistics*

Descriptive Statistics							
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Informs teaching and learning	89	1.00	4.00	1.3034	.59169	2.496	.255
Encourages stake holders to be able to come up with recommendations during curriculum development	89	1.00	11.00	1.5281	1.19744	5.863	.255
Encourages constructive criticism	82	1.00	3.00	1.5976	.64521	.615	.266
Has positive impact in curriculum planning, implementation and evaluation	87	1.00	3.00	1.6207	.70284	.689	.258
Offers information that is relevant to their needs	88	1.00	3.00	1.6364	.69781	.639	.257
As part of the curriculum development process lecturers will be motivated during teaching and learning	88	1.00	2.00	1.6591	.47673	-.683	.257

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Are equipped with the skills and information required in the industry	88	1.00	4.00	1.6705	.69019	.756	.257
Reduces skills mismatch	79	1.00	3.00	1.7089	.68223	.441	.271
Are expects in the designing of the of the teaching materials ensure correct implementation of the curriculum	89	1.00	3.00	1.7640	.62199	.206	.255
Ensure correct implementation of the curriculum	89	1.00	3.00	1.9775	.67382	.026	.255
Educational level	89	2.00	3.00	2.1236	.33098	2.327	.255
Number of years in curriculum development	89	2.00	31.00	3.5169	3.01930	8.748	.255
Valid N (list wise)	69						

The provided descriptive statistics offer insights into the central tendency, variability, and skewness of various variables. Each statistics is interpreted bellow:

**i. Informs teaching and learning:**

Mean: 1.3034

Standard Deviation: 0.59169

Skewness: 2.496 (positive skewness)



**Interpretation:**

The mean of 1.3034 suggests that, on average, respondents agree that stakeholder involvement informs teaching and learning. The positive skewness (2.496) indicates that there is a tail towards higher values, suggesting that a few respondents strongly agree with the statements.

- ii.** Encourages stakeholders to come up with recommendations during curriculum development:

Mean: 1.5281

Standard Deviation: 1.19744

Skewness: 5.863 (positive skewness)

**Interpretation:**

The mean of 1.5281 indicates that, on average, respondents agree that stakeholders are encouraged to make recommendations during curriculum development. The high positive skewness (5.863) suggests a pronounced tail towards higher values, indicating that a few respondents strongly agree.

- iii.** Encourages constructive criticism:

Mean: 1.5976

Standard Deviation: 0.64521

Skewness: 0.615 (positive skewness)

**Interpretation:**

The mean of 1.5976 suggests that, on average, respondents agree that stakeholder involvement encourages constructive criticism. The positive skewness (0.615) indicates a slight tail towards higher values.

- iv.** Has a positive impact in curriculum planning, implementation, and evaluation:

Mean: 1.6207

Standard Deviation: 0.70284

Skewness: 0.689 (positive skewness)

Interpretation:

The mean of 1.6207 suggests that, on average, respondents agree that stakeholder involvement has a positive impact on curriculum activities. The positive skewness (0.689) indicates a slight tail towards higher values.

- v.** Offers information that is relevant to their needs:

Mean: 1.6364

Standard Deviation: 0.69781

Skewness: 0.639 (positive skewness)

Interpretation:

The mean of 1.6364 suggests that, on average, respondents agree that stakeholder involvement provides relevant information. The positive skewness (0.639) indicates a slight tail towards higher values.

- vi.** As part of the curriculum development process, lecturers will be motivated during teaching and learning:

Mean: 1.6591

Standard Deviation: 0.47673

Skewness: -0.683 (negative skewness)

Interpretation:

The mean of 1.6591 suggests that, on average, respondents agree that lecturers will be motivated during teaching and learning. The negative skewness (-0.683) indicates a slight tail towards lower values.

- vii.** Are equipped with the skills and information required in the industry:

Mean: 1.6705

Standard Deviation: 0.69019

Skewness: 0.756 (positive skewness)

Interpretation:

The mean of 1.6705 suggests that, on average, respondents agree that stakeholders are equipped with industry-required skills and information. The positive skewness (0.756) indicates a tail towards higher values.

**viii. Reduces skills mismatch:**

Mean: 1.7089

Standard Deviation: 0.68223

Skewness: 0.441 (positive skewness)

Interpretation

The mean of 1.7089 suggests that, on average, respondents agree that stakeholder involvement reduces skills mismatch. The positive skewness (0.441) indicates a slight tail towards higher values.

**xi. Are experts in designing teaching materials and ensuring correct implementation of the curriculum?**

Mean: 1.7640

Standard Deviation: 0.62199

Skewness: 0.206 (positive skewness)

Interpretation:

The mean of 1.7640 suggests that, on average, respondents agree that stakeholders are experts in designing teaching materials and ensuring correct implementation. The positive skewness (0.206) indicates a slight tail towards higher values.

**ix. Ensure correct implementation of the curriculum**

Mean: 1.9775

Standard Deviation: 0.67382

Skewness: 0.026 (positive skewness)

Interpretation:

The mean of 1.9775 suggests that, on average, respondents agree that stakeholder involvement ensures correct implementation of the curriculum. The positive skewness (0.026) indicates a relatively symmetrical distribution.

#### **4.5. Evaluation of the Findings.**

The results of this study from the raw data on the requirements of the development of a quality technical and vocational education curriculum in Botswana had been presented. For the researcher to arrive at the results presented, a thematic analysis of qualitative data from the questionnaires, interviews was done using inductive thematic analysis. The initial data was in the form of an answered questionnaire and interview scripts from the curriculum development officers, quality assurance officer and curriculum implementers (lecturers). Quantitative data was analysed by the use of Statistical Package for the Social Sciences (SPSS).

In this section the study results are shown in tables and interpreted, after collection of data with the use of questionnaires and interview scripts. To answer research question one (RQ1) regarding the curriculum framework used during curriculum development of technical and vocational education, a thematic analysis of the participants' understanding of the curriculum framework, its composition, policies used and the knowledge of the model used was carried out. The different people engaged during curriculum development and the relevance of curriculum in the future was thematically analysed. This was followed by the analysis to answer research question two (RQ2) regarding the factors that are required during curriculum development in order to produce a quality curriculum.

A thematic analysis of a quality technical and vocational education with regard to competitiveness and promotion of creativity and innovativeness was done. Furthermore, an

analysis of the research question three (RQ3) vis-à-vis the alignment of the certificate and the diploma curriculum in vocational education was carried out. The researcher carried out a thematic analysis on the coherence of the certificate and diploma curriculum, its benefits and the factors that might hinder the alignment of the two curricular. Finally a statistical analysis to answer the research question four (RQ4) regarding the level of engagement of the curriculum implementers during curriculum development was done. This research question had closed ended questions which were analysed by the use of statistical package for social sciences software.

The results above indicate that the curriculum developers, quality assurance officer and the lecturers responded to the concepts under investigation that is, curriculum framework; its components and policies that inform the framework that is being used for the development of the curriculum. Furthermore they cited the model that had been adopted. The participants also managed to respond to the concept of a quality curriculum, its factors, and competitiveness and how it encourages creativity and innovation. Lastly in their discussion they articulated about an aligned curriculum, its benefits, factors that may hinder the development of an aligned curriculum and the different people that should be engaged in order to develop an aligned curriculum.

#### ***4.5.1. Evaluation of Curriculum Framework.***

The outcomes of the research indicated that, lecturers understand what a curriculum framework is all about. The results indicated that a curriculum framework is a structure that is qualified by the guiding principles, organized standards and has competency levels that are required for the educational development of the nation as a whole. A curriculum development framework should be informed by the policies and the vision of the country. Furthermore, they alluded that a curriculum framework should show the learning outcomes and exit outcomes of the programme. Respondents believe that a curriculum framework should be aligned and

regulated by the qualification authority of the nation. In this case the Botswana Qualification Authority and the National Credit Qualification Framework have been cited by the respondents. The respondents believe that a framework should dictate the teaching methods and the resources that are required during curriculum implementation. The respondents understanding of a curriculum framework was anchored on the course outline and the modules that inform the course outline. They said it should define the content to be delivered in terms of clarity and relevance.

To concur with the above sentiments, a curriculum framework is described as an overall educational vision of a country which informs the educationists about the objectives and goals, it further outlines the motive behind the curriculum and its philosophy (Bautista, Bull, Ng, & Lee, 2021). The respondents further alluded that a curriculum framework should emphasise the teaching and learning methods that are required during curriculum delivery. Bautista, Bull, Ng & Lee (2021) Furthermore they sentimented that, it should emphasise authentic education activities and appraisal of tasks.

As for the composition of the curriculum framework the respondents emphasised more on the teaching methods and the assessment processes and the clarity of the content that should be covered. They also stressed that the content to be covered should emphasise more on the acquirement of entrepreneurship skills and technical skills. Likewise they suggested that, it should also have the level descriptors. They are of the view that the framework should also include the regulatory bodies which will endorse the curriculum, educational policies, teaching packages and the scope of the curriculum. The data reflected three areas that the respondents emphasised that are most influential as the components of a curriculum framework those being firstly, instructional design which consists of the teaching methods, assessment, methods, teaching standards, training packages. More emphasis was placed on lifelong learning and the learner being actively involved during teaching and learning. In congruent with the above, the

curriculum framework should encompass the pedagogy, technology and content knowledge, more emphasis should be placed on knowledge, delivery, reception and how the knowledge is applied to the real life situation (Arifin, Nurtanto, Warju, Rabiman, & Kholifah, 2020).

Secondly, regarding the statutes, they revealed that statutes should be part of the curriculum because they guide on the needs of the country. They show the direction at which the country requires their education system to turn out in the future. Thirdly, regarding the competency levels the respondents said that the level of competency is very important to ensure that the content is aligned with the programme level. They mentioned that the competence level shows the level descriptors and the extent in which the curriculum should be planned and the standards that are being set. Competency levels play a significant role in a curriculum framework, they outline the credentials needed for the professional to practice in a particular occupation (Trinder, 2008).

An understanding of the policies that informs the curriculum development of the technical and vocational education in Botswana was described. The policies included the Revised National Policy on Education (RNPE) of 1994 which provided the framework on how technical and vocational education should evolve in Botswana, the National policy on vocational education and training of 1997 clarified the direction on the future of technical and vocational training and how it should be implemented. Its main objective was to emphasise on capacity building of the human resource in order for the country to achieve global competitiveness (Ministry of Labour and Home Affairs, 1997), Education for Kagisano of 1975, the national vision 2036, the Education and Training Sector Strategic Plan (ETSSP) emphasised more on competent human resource. The respondents also included some of the statutes which are crucial in the education sector such as the Human Resource Development Council labour analysis reports and Maitlamo policy. These documents assist in identifying the gaps in relation to the labour market needs of the country, identification of the gaps would

assist the curriculum developers to develop a curriculum which addresses the needs of the country.

Regarding the model used during curriculum development and the reason why the model was used, the respondents indicated that the model used was influenced by the Germany technical and vocational education as they are the ones that incepted technical and vocational education. The model that is being used currently is the Develop a Curriculum Model (DACUM) which is an outcome based model. The model is an experiential model which emphasises learning by doing. Furthermore the participants sentimented that the model stresses more of learner centered methods of teaching rather than teacher centered. Secondly the respondents stressed the use of the practical method in which 80% is practical and 20% is theory. The outcome based model also emphasises that the knowledge that the learners had acquired should go beyond classroom learning and be applicable to the real life situations. Incongruent with the above sentiments, Alam (2020) asserted that, the main drive of education must be to prepare the learner to become, active and participate in a democratic society. Moreover the models are centered on the tagline “learning by doing” (Copriady, 2018). The respondents also posited that, even though the model seems to have good intentions unlike Germany, Botswana technical and vocational sector is still under funded as such most of the times they encounter challenges during delivery due to lack of resources.

The respondents further posited that the model is used because it produces market ready learners as it allows the learners to learn by practicing and applying the concepts, ideas and relate them to their previous experiences. The respondents especially the curriculum developers opined that, DACUM was used because it was recommended by the German corporate which had a partnership with the Department of Teacher Training and Technical Education. They recommended that a study should have been carried out before the model was recommended in order to find out whether it is relevant to the needs of the Nation. They recommended the



process models of Scottish and Korean because they are service inclined to specific fields where graduates have to apply knowledge, skills and attitudes on a daily basis in the field.

Concerning the personnel that should be involved during curriculum development, the respondents believed that the industry personnel and the lecturers as experts in the subjects are the most relevant people. They acknowledged that, the industry people would be very viable concerning the new trends regarding the programme of study. They posited that, the graduants produced would be relevant and thus meet the needs of the employer. As for lecturers, the respondents acknowledged that their presence in curriculum development would ensure that pedagogy and content is at the level of the programme under development. The involvement of the lecturers is very crucial because lecturers are experts in teaching and learning, that is they are capacitated on the ways in which content should be delivered, and they can be able to deduce the challenges that may be encountered during programme delivery and be able to advice efficiently. Lecturers would bring forth the previous experiences they encountered when offering the programme. This would assist in making informed decisions (Belita, Carter, & Bryant-Lukosius, 2020) .

Regarding how they view the future of technical and vocational education in Botswana, they said that they envisage a technical and vocational education that will produce the graduates that are entrepreneurially skilled who are globally competitive, innovative, creative and self-reliant. They said that to achieve this, the technical and vocational sector need a competitive curriculum. This sentiments auger well with UNESCO (2015) which alluded that a well-defined vocational education should follow a transformative approach with the aim of imparting skills that can develop individuals, societies and the industry in order to create, strengthen and better the livelihood prospects of the individuals (McGrath, et al., 2020).

Furthermore, the respondents sentimented that the competitiveness of technical and vocational education can be enhanced by ensuring that the curriculum is aligned with the

national and industry needs. Additionally, they said that enhancement can be done through capacitation of both the curriculum developers and the lecturers. As for the learners there is a need for the collaboration with the industry where learners could be provided with practical training which will enhance their practical skills. They further advanced that learners should be accorded the opportunity to give feedback regarding the programmes of study as this would assist in ensuring quality and evaluation of the programmes

#### ***4.5.2. Evaluation of Quality Technical Vocational Education.***

There were four open ended questions regarding this factor. The first question aimed at finding out whether the participants understand the concept of quality, the second question aimed at establishing whether the participants are aware of the factors that should be considered in order to produce a quality curriculum. The third question was about what participants think a quality competitive curriculum should focus on. The fourth and final question focused on the global competitiveness of the curriculum. The responses were coded and majority of the responses were closely related and this made coding a lot easier.

Regarding the steps that should be considered in order to produce a quality curriculum the respondent concurred that a detailed consultation with the partakers of the curriculum is key. Doing so will help to close the skills gap and will ensure an evidenced based curriculum which will produced graduates who are market ready.

#### ***4.5.3. The description of a Quality Technical Vocational Education.***

The participants described a quality technical and vocational education curriculum as a curriculum that produce graduates that are employable and can create jobs on their own. That is a curriculum that is relevant to the industry and the nation. They said it should have relevant content and detailed teaching and learning processes. They further mentioned that, the instructional materials prescribed should be relevant to the specified programme of study. The participants opined that a quality curriculum should provide relevant teaching resources such

as teaching laboratories and workshops for practical subjects. The respondents further advanced that, the curriculum should fully engage the stakeholders.

Moreover, they underscored that, the curriculum objectives should be clear on how it is going to address the needs of the nation. Likewise, they indicated that, the curriculum should have a room for capacity building of the lecturers. In congruent with the above, a quality curriculum denotes a curriculum that consists of all the modalities which are required in the process of teaching and learning (Twining, et al., 2021). The curriculum should empower the learners with lifelong skills that can help them to be able to prosper and equip them with knowledge and competencies required in the rapid dynamic changes of the technological world (Twining, et al., 2021). Three key themes were arrived during thematic analysis. Those are employability of graduates, globally competitive and relevance to the industry and nation's needs. From the three themes, the employability of the graduates and relevance to the industry was rated higher by all the participants (89) which represents 100% of the participants and 80 out of 89 translating to 90% said that for a curriculum to be considered quality its graduates should be internationally recognized. The curriculum developers' also shared similar views of employability and competitiveness.

#### ***4.5.4. Factors to be considered when developing a Quality Curriculum.***

Concerning what to take into consideration in order to develop a quality technical vocational education, the participants had uttered differentiated opinions. They uttered that a quality curriculum should encompass all the necessary requirements that would create a learning environment in which learners will achieve the learning outcomes with ease. Among other factors the participants said it should focus on the country needs, stakeholder's needs, clearly outline the resources and be vigilant of the new trends. In congruent with the above, Ayonmike, Okwelle & Okeke (2015) posited that quality involves several dimensions subsuming the entire functions of the education sector, encompassing the programmes, human

and physical resources, the learners, the school environment, national and international requirements. For example student exchange programmes, networking for both lecturers and students. The participants further said that a quality curriculum should be aligned at all levels and the content should be sequential. Three themes were arrived at after coding. These were stakeholder needs, national needs, resources and technology. The participants from both groups (lecturers, curriculum developers and the quality assurance officer) rated the stakeholders and the needs of the nation highly. Concerning the stakeholders they said that the lecturers should be capacitated so that they can be confident during the delivery of the curriculum. With regard to the national needs they said the curriculum should address both the national and international policies dealing with education. As for the resources and technology, they said there is a need for proper funding of the technical and vocational education so that the schools are resourced with relevant resources which will meet the current technological trends.

#### ***4.5.5. Evaluation of Quality Competitive Curriculum.***

With regard to this question, the participants described a quality competitive curriculum as a curriculum that will impart the learners' life with skills that will sustain them in the future. Moreover, they suggested that the curriculum should keep abreast with the technological changes. To add more they said it should provide the learners with relevant skills. As a technical and vocational education it must emphasise more on practical. The participants said that for the curriculum to be considered competitive, it should focus on global inclusiveness of skills, knowledge and competencies, further the teaching and learning methods should be learner centered and flexible. The participants' opinions agree well with, Twining, et al (2021) who asserted that, "It is reinforced by a vision of , helping every learner to develop as a whole person, accomplish his or her own potential and help shape a shared future built on the well-being of individuals, communities and the planet" . The themes deduced from the participants' views were curriculum competitiveness, alignment and lifelong. Competitiveness was regarded

in terms of skills, knowledge and competences, new trends in the industry and technological advancement. Regarding alignment, the participants opined that it should meet the needs of the country and industry. In line with lifelong learning the respondents reiterated that, the curriculum should promote lifelong learning and impart life skills.

#### ***4.5.6. Ensuring that the Curriculum is Globally Competitive.***

The participants said that to ensure that the curriculum is globally competitive, the curriculum developers have to benchmark nationally, regionally and internationally so that they can copy the best practices from others and contextualize them to their own setting or needs. To concur with the above, Sutia, et al (2020) added that, benchmarking with other organizations enhances productivity, improves quality and ensures on going and endless improvement of both the curriculum and the employees. Furthermore they said the curriculum should allow for student exchange programs. They said that the developers should also collaborate with the stakeholders. Benchmarking has been viewed as a tool which can guarantee exchange of philosophies (Jarrar & Zairi, 2001). They further emphasised that before the curriculum developers develop the curriculum, they should carry out the research so as to align the curriculum with the needs of the nation.

#### ***4.5.7. How the Current Curriculum Promote Creativity and Innovation***

The participants echoed that the current curriculum promotion of creativity and innovation is minimal because of the financial restrictions. They alleged that research is encouraged but it is not emphasised. Moreover they orated that the current curriculum objectives are limited in terms of creativity and innovation. They alleged that the curriculum is outdated and lacks practical. To ensure that creativity and innovation is met during curriculum development, the respondents alluded that the curriculum should emphasise on research and projects. They believed that during research the learners are accorded a chance to come up with ideas. Furthermore, they said that for the curriculum to promote creativity and innovation it

should be fully funded and the curriculum should move away from traditional way of teaching to learner centered. To concur with the participants' sentiments, Akpan, Odum & Nwokocha (2019) resonated that, the curriculum must allow for innovation and creativity so that the learners can be accorded an opportunity to show case their talents, understanding and inspiration (Akpan, Odum, & Nwokocha, 2019).

#### ***4.5. 8. Evaluating Curriculum Alignment.***

Curriculum alignment is very key in education as it increases the learners' opportunities to transition easily from one level to another and furthermore apply their previous experiences to the next level. Curriculum alignment for the certificate and diploma levels if achieved, can increase the motivation of both student and learners and thus improve the quality of education in Botswana.

##### **i. Alignment of curriculum at Certificate and Diploma**

This question focused on the current situation of the technical and vocational education in Botswana with regard to alignment of the certificate and the diploma institutions. There are only two programmes that offer Diploma and Certificate. That is Business and Hospitality and Tourism. Concerning alignment the respondents asserted that, there is minimal alignment between the certificate and diploma programmes. The minimal alignment is a resultant of the two groups developing curriculum in silos and that led to low curriculum alignment. The minimal alignment led to limited opportunities for students to transition smoothly from one level of education to another due to skills and knowledge gap. Those who transition they face difficulties in the programmes during learning in terms of content coverage and meeting new concepts which they did not cover at the lower level. The implications of curriculum misalignment further led to irrelevance to industry needs for example in Business studies there are some modules such as Short hand which are no longer relevant in the industry because currently there some software systems that are used for transcribing. The respondents uttered

that learning outcomes at the certificate level should mirror those at the diploma so that the learners easily relate content if one decides to further their education.

ii. Ensuring certificate and diploma curriculum are aligned.

The respondents emphasised that there should be a collaboration between the curriculum developers at the certificate and diploma level. The two groups should fall under one body so that there is proper monitoring and evaluation of the processes starting from the development, delivery and assessment. They said that the curriculum should be developed taking into consideration the National Credit Qualification Framework. They said the curriculum development group should consist of the lecturers who teach at both certificate and diploma level. They further said that the Botswana Qualification Authority should come up with ways to monitor the development of the curriculum and to ensure curriculum alignment at all times. To add more to these sentiments, Wijngaards-de Meij & Merx (2018) advanced that, most nations use curriculum mapping tools to analyse and enhance the consistency of the curriculum and to afford an indication for assurance of quality and approval bodies. Both the lecturers and the curriculum developers are of the view that there is a need for working together with the lecturers and the curriculum developers at the certificate level. Working together will eliminate the inconsistencies and the claims sometimes made by the students that they had not been taught a certain concept (Wijngaards-de Meij & Merx, 2018).

iii. Benefits of curriculum alignment

The respondents concur that curriculum alignment is very crucial in the education sector, they advanced the following views that, an aligned curriculum will improve the quality of the graduates. Improving the quality of the graduates will ensure skilled workforce and thus eliminate skills mismatch and ultimately increase the growth of the industry. Furthermore they added that there will be easier transition for the learners. Additionally they are of the view that, there will be easy articulation of the curriculum from one level to another. An aligned

curriculum will increase creativity and innovation as the learners will be able to use their previous experiences and relate them with the current content. An aligned curriculum can assist in upgrading student performance and enhancing the efficiency of the curriculum discussions moreover, it assists the policy makers and educators to identify the gaps and solicit ways to address them (Shaltry, 2020).

iv. Theme analysis: Factors that may hinder the development of an aligned curriculum.

The respondents mentioned that the development of an aligned curriculum is hindered by many factors among them being the following; the collapse of the collaboration between the industry and the technical and vocational sector. Technical and vocational education is under financed and that hinders the effective planning, implementation, monitoring and evaluation. The curriculum developers specifically said that they have not been trained in curriculum development as such they lack in many aspects of curriculum development. Adding to the above opinions, Ngure (2013) asserted that, the development of skills and training of the workforce is critical in the productivity and successful interpretation of their work. Moreover, skills acquisition will stimulate employees' competitiveness and morale.

#### ***4.5.9. Evaluation of Curriculum Misalignment***

Misalignment of the certificate and diploma programmes can negatively impact the learners in terms of progression and the education sector as a whole. It can create gaps which may disrupt the learning cycle. That is, if the objectives at the certificate are not aligned with those that are at diploma level, they may either cause repetition of the content which may impact on students' morale and some learners may dropout from the programme as they would see it as a waste of their time. Misalignment may lead to learners missing some introductory knowledge which they may need in the next level. This may result in production of inefficient graduates which may lack some foundational skills in the programme. The results indicated that misalignment can further result in learners acquiring skills that are not aligned to the needs of



the industry and this would negatively impact of the employability of the graduates. Moreover it may lead to a fragmented TVET system which may result in challenges in credit transfer among the levels.

#### ***4.5.10 Evaluation of Teacher Involvement in Curriculum Development***

##### **a. Stages at which implementers are involved during curriculum development:**

The framework that is discussed in this study is the Analysis, Design Development Implementation and Evaluation model of curriculum development. This model was chosen because it is collaborative model which include all the stakeholders required during curriculum development in order to produce a quality curriculum. The researcher wanted to find out the stage at which the curriculum implementers are engaged during curriculum development. The results indicated that the implementers are engaged mainly at the development and the implementation stages. They said being included at these stages limit them to contribute effectively and leads to lack of ownership of the curriculum. It denies them rights to growth as a professional. When responding to the stage at which they would like to be engaged, they asserted they would like to be engaged at all levels as it will motivate them to contribute positively to the growth of the technical vocational sector and also opportune them improvement and to gain experience. This would also allow them to align content of curriculum with the student needs in the classroom.

##### **v. Implications of involvement of lecturers in curriculum development**

This section evaluated the implications of the stakeholders concerning their involvement in curriculum development. There were ten closed ended questions which were analysed by the use of SPSS. The results indicated that lecturers are very critical when developing a curriculum in terms of teaching methods and materials required during implementation, and making recommendations on content coverage. To support the above,

teacher involvement in curriculum development provide insights in the pedagogy, and resources required during delivery (Barros, Domke, Symons, & Ponzio, 2021)

### **Summary.**

This chapter has reported and evaluated the results of the study under investigation. The results were discussed in relation to the four research questions. The data collected from the four questions were analysed thematically and in tables. Research question 1 investigated the curriculum frame work, research question 2, established the factors considered in order to develop a quality curriculum, research question 3 investigated the alignment of certificate and diploma curricular and lastly research question 4 explored the level of involvement of the curriculum implementers during curriculum development.

Data trustworthiness was deliberated and described as a very critical area in research as it assures the reader that the results are worthy. A discussion on the methods of ensuring the authenticity of the study and how they were applied were discussed as follows. Member checking this was done to authenticate the study results, collaboration, the level at which the researcher collaborated with the participants, transferability was ensured through not generalizing the results. The data authenticity was further checked through active participation of the participants throughout the study. Additionally, transparency was supported through informing the participants about the study processes. A discussion on how ethics were applied during and before data collection was reported. To further check the validity of the results, triangulation was used to ensure that the results are credible, reliable and accurate through the use of focus groups and individualised interviews. The sampling method used was chosen because the participants were familiar with the subject under investigation. Back up processes, confidentiality and anonymity were used to safe guard the data and protect the participants from harm.

Demographic data was reported in terms of gender, age, educational level and number of years in curriculum development. Regarding gender, the results showed that, majority of the respondents were females and a lesser number not mentioning their despite having been provided with an option of preferring not to mention. With regard to age majority of the respondents ranged between 40 and 45 years with the least ranging between 35-40 years of age. Concerning curriculum development the results showed that majority ranged between 10 to 15 years' experience in curriculum development. Qualitative results were coded and later organized into themes derived from the codes. The results from the closed ended questionnaire which enquired about the implications and involvement of the stakeholders in curriculum development indicated that collaboration with stakeholders is very critical in ensuring that the curriculum developed is competitive and reputable.

This section has presented the evaluation of the results from the participants and related it with the literature. The participants had opinioned that there is a need for a curriculum framework that empowers and produces competent human resources. Furthermore they indicated that collaboration between the certificate level curriculum developers is crucial for easier transition and linkage of the concepts or experiences with the previous knowledge when learners progress to the other levels. The policies that influence the education of the technical and vocational educational looked at. The results revealed there is a need for robust technical and vocational education policy which will deal with the advancing technological and dynamic changes. Finally the significance of a working curriculum framework that is relevant to the needs of the industry and the nation as a whole cannot be overemphasised as it would lead to the economic advancement of the country in terms of competent human resource and increased socio economic standards of its people.

The evaluation of the findings regarding the quality of the technical and vocational education in Botswana was discussed. This focused mainly on the global competitiveness of

the curriculum. It underscored that, for a country to be regarded as globally competitive, it has to start with its education system as it is a vehicle that drives and shapes its human resource. Quality curriculum has been summed up as a curriculum that includes all the necessary requirements that would make learning at ease. This would be the learning environment, resources, the objectives and the learning outcomes. Further it should satisfy both the stakeholder, national, regional and global needs. The themes derived from the participants' responses included the stakeholder needs and national needs. These needs were highly rated because after completion of the learners' education, graduates transition to the world of work. With regard to assuring that the curriculum is globally competent, the study results revealed that there is a need for the curriculum developers to benchmark with other organizations that offer similar programmes. Benchmarking will enhance the competitiveness of both the learners and the lecturers through exchange of ideas, adopting best practices and enhancement of the learners' creativity and innovation through student exchange programmes. In addition, this section discussed how the current curriculum promotes creativity and innovation of the teaching and learning. It was revealed that creativity is minimal or is not there at all because of insufficient funds which led to the lack of resources. The lack of resources results in minimal practical and the lecturers resorting to lecture method and demonstrations. Even so, the respondents proposed that the curriculum should encourage research.

Curriculum alignment between the certificate and diploma offering programmes was also discussed. Firstly it was agreed that the alignment of the certificate and diploma programmes cannot be overrated. The participants echoed that, the alignment would ease the transition of the learners among the levels as it will create a clear path way for learners. Relating to the current situation, the participants alluded that there is minimal alignment because the curriculum developers of both levels do not meet. They develop the curriculum individually despite the fact that the certificate institutions are the feeders of the diploma institutions. To

ensure that the curriculum is aligned, there is a need for the two groups to operate under one roof and develop the curriculum together. It was further deliberated that, during the development there is a need for the developers to consider the National Credit Qualification and the curriculum alignment should be monitored by the Botswana Qualification Authority (BQA).

The benefits of an aligned curriculum were debated as improvement of the quality of the graduates, skilled workforce, and elimination of the skills mismatch and growth of the industry base. Furthermore, an aligned curriculum will ensure easier transition among levels, easy articulation of the curriculum and increased creativity and innovation by the learners as they will be building their ideas on the previous knowledge that they learnt at a lower level.

The study revealed the factors that may hinder the development of an aligned curriculum apart from the individualized curriculum development by the certificate and the diploma offering curriculum developers. It was further noted that, minimal collaboration between the industry and the sector of technical vocational education has an impact in the alignment of curriculum. To curb the situation, it was stated that, there is need to fully engage the industry stakeholders and the lecturers in all the stages of the curriculum development process. the industry stakeholders would advance their technical expertise regarding the currency of the equipment required for a particular programme while the lecturers would offer content and the teaching methodologies required in that particular programme.

The study investigated the different stages at which the lecturers are involved during curriculum development. It was realised that majority of the lecturers are involved mainly at the implementation level. The argument from the respondents is that they need to be involved at all levels so that they can own the programmes. Moreover, the implications of the involvement of the lecturers in all the stages of the curriculum development had been discussed. It was concluded that, lecturers are very critical in the development of a quality and relevant

curriculum as they are the ones who ensures that the learners fully achieve the learning outcomes. With that in mind, this study had revealed that to develop a competent and quality technical and vocational education there is a need for the input of the stakeholders at the all levels.

## **CHAPTER 5: IMPLICATIONS, RECOMMENDATIONS FOR APPLICATION, FUTURE RESEARCH AND CONCLUSION**

### **5.1. Introduction.**

This chapter will discuss the inferences, recommendations and conclusions of the study in relation to the questions of the study. The research had four research questions which aimed at investigating the quality of the technical and vocation education curriculum development in Botswana. It focused on the competency of the curriculum framework being used, the elements that are essential to produce an outstanding learning framework and alignment between the curriculum of the Certificate and the Diploma levels, how the participants view the quality of the current curriculum and finally the benefits and implications of involving lecturers in curriculum development. The research study was focused more on the curriculum implementers.

The study is aimed at addressing the problem of minimal participation of lecturers in the process of curriculum development and the segregation of the curriculum developers for both certificate and diploma programmes despite the fact that they both offer similar programmes. The researcher proposes that, the curriculum implementers are very critical and should be engaged in all the stages of curriculum development as they are the drivers of the learning process in terms of pedagogy. Furthermore, alignment of curriculum for both the above said levels is critical as content alignment will allow learners to easily relate the previous knowledge with the current content. This aligns well with the constructivist theorists who posited that the learners create meaning from their previous experiences. Involvement of the curriculum implementers requires them to be aware of the competency of the curriculum framework, the policies that inform the framework and the broader aims of the education system. A curriculum framework is very crucial in the education sector of a country as it is composed of the standards of education and the national vision, Furthermore, it proposes

teaching and learning methods. Additionally, it prescribes teaching resources for implementing the curriculum and among other things, it gives direction to the lecturers on the achievement of the proposed curriculum (Stabbak, 2016). Regarding the factors that are required to produce a quality curriculum, the knowledge of lecturers concerning a quality curriculum was explored. It was revealed that lecturers had varied expressions of a quality curriculum. The varied views will be discussed further in the implications of the study section. Regarding how the curriculum alignment of the certificate and the diploma levels can be maintained, the participants agreed in one accord that it can be maintained by collaboration between the personnel from both levels. The results of the study revealed that the benefits of the curriculum implementers during curriculum development cannot be overemphasised. Further discussion regarding the benefits of stakeholders will be discussed later in the implication section.

This research study is assumed to be appropriate to the management of technical and vocational education and training (TVET) and the Ministry of Education and Skills Development. These two groups can profit from the study results and apply the research findings to improve quality of technical and vocational education. Additionally technical and vocational education institutions would also find the study result relevant particularly those that offer both certificate and diploma programmes. The implementers and curriculum developers would benefit in terms of in service training which would enhance their skills and thus capacitate them with relevant skills required in curriculum development. A quality curriculum development process would result in the development of a competent curriculum which will produce entrepreneurially skilled graduates and thus reduce the rate of unemployment in the nation. The study will assist the technical and vocational sector with ways which they can use so as to enhance the competitiveness of this sector of education.

The review of literature indicated that Botswana's technical and vocational education system (TVET) was effected way back under the influence of the German technical and



vocational system. Since its inception, the TVET sector has changed its latitude as a part of the entire education system and increased in importance and intricacy. This growth saw an increase in the population that is being served by the sector. This increase calls for a new and innovative way of the implementation of technical and vocational education in Botswana. This new and innovative way can be attained through the application of many factors that will be discussed later.

The significance of the research is to enlighten, collect data to enhance theory and add to the existing information of the subject being studied. This study has equipped the researcher with the knowledge about how the curriculum implementers of technical and vocational education are engaged in the process curriculum development and how the educational programme alignment can be achieved in order to develop a quality curriculum. By doing so, the research questions that were raised in the study were answered and moreover some new questions were raised. The new questions established a platform for future research in the topic of quality curriculum development process which could be accomplished in the subsequent areas: Firstly, adding on the findings of the current research. Secondly, curriculum implementation, that is, how teaching and learning can impact the quality of the technical vocational graduates. Thirdly, collaboration of the certificate programme developers and the diploma programme curriculum developers and how the linkage of the two can improve the transition and quality of learners. Fourthly, funding streams (training levy, implementation of the cost recovery measures). Finally, the level of engagement of the industry stakeholders in the running of technical vocational education in Botswana. Additionally, a future study can be carried out on how the involvement of the curriculum implementers at all levels of the curriculum framework can add value to the technical and vocational sector. Below is an expansion of the recommendations for future research.

The study's overall objective was to examine the quality of the curriculum development process in the technical and vocational education sector. More emphasis was put on the involvement of the lecturers during the development of the curriculum and the alignment between the certificate offering curriculum development and the diploma offering curriculum development. The study was relevant in two folds. Firstly it would enhance the knowledge base around curriculum development in Botswana's technical and vocational education. Secondly it would ensure the development of an aligned curriculum. A number of studies had been conducted globally about curriculum development and models of curriculum development only a few had been conducted in Botswana if any. Secondly the study focused on two areas of interest that is, participation of curriculum implementers in curriculum development and the alignment of certificate and diploma offering curricular.

## **5. 2. Implications.**

### ***5.2.1. RQ1: In what ways can the Competency of the Technical and Vocational Curriculum Framework be enhanced?***

The understanding of the curriculum framework and its competitiveness among the respondents is very prevalent. They regarded a competent curriculum as a curriculum that has explicit content, achievable learning outcomes. The participants reflected that, a competent technical and vocational education curriculum should emphasise more on entrepreneurial and technical skills. A competent curriculum should focus on the application of the acquired knowledge to real life situations (Arifin, Nurtanto, Warju, Rabiman, & Kholifah, 2020; Stabbak, 2016). The framework competitiveness was also interrogated in terms of the policies that are used in the framework, this was to find out whether the framework addressed the educational policies both national and international. The participants revealed that the main policy that the technical education is relying on is outdated (Revised National Policy on Education of 1994) and is no longer relevant. The policy is indeed has some gaps which could

be closed by the development on a new which can address the rapid changes of the technological world. They further alluded that, department has no policy that is specifically for technical and vocational education. The sector relies on national policies such as the Education for Kagisano, Education act of 1975, the national vision 2036, the Education and Training Sector Strategic Plan (ETSSP). The results indicated that, the framework lacks a touch of the global competitiveness as the policies that are being used are national policies.

Regarding the model that is drawn from the curriculum framework in place, they said they use an outcome based model referred to as Develop A Curriculum (DACUM). The model is viewed by the respondents as suitable because the activities are more learner centered than teacher centered. This model is in congruent with the Analysis-Design- Development- Implementation-Evaluation (ADDIE) which puts more emphasis on student participation in their learning rather than being the recipients or passive in their learning (Peterson, 2003). Furthermore they said that though the model seems good delivery according to its standards is compromised due to lack of resources. Despite the positives that they have about the DACUM model the respondents have mixed feelings about it, they alluded that the model was imposed to them. They suggested that a study should have been carried out to find out whether the model was relevant to the needs of the country or not. The respondents suggested that there is a need for a process model which is service inclined specific skills where the graduates have to have to apply knowledge, skills and attitudes on a daily basis in the field.

In view of the personnel to be considered in the framework, the respondents sighted the stakeholders, both internal and external, they believe that the presence of the stakeholders will enhance the quality of the curriculum. They particularly stated that, the curriculum implementers should be engaged at all the stages of the framework. This resonates well with Wilford (2018) who sentimented that the lecturers role in the development of a curriculum cannot be overrated as they are specialists, researchers, and masters of curriculum, he further

said that their role cannot be limited to a particular stage, it is crucial for them to be engaged in all phases of the curriculum development process. This is in congruent with the studies conducted in South Africa, Ghana and Zimbabwe which emphasised that it is crucial for the inclusion of lecturers in all the phases of curriculum development as this will lead to the growth of the lecturers' morale and professionalism. (Carl, 2005; Abudu & Mensah, 2015; Chinyani, 2013). To concur with the above thoughts, it is prevalent that the lecturers' are essential during curriculum development. More on the personnel that has to be included in the curriculum framework, the respondents uttered that a technical and vocational education cannot be complete without the involvement of the industry stakeholders, they alluded that the industry stakeholders are key because the graduates that are produced in this sector of education are absorbed by the industry, as such to minimize the skills mismatch there is a need for inclusion of the industry stakeholders in the curriculum framework.

On a different note they said that noninvolvement of the industry can be detrimental as the curriculum would produce graduates who cannot be absorbed in the industry. These resonates well with Terblanche (2017) who posited that, noninvolvement of the industry stakeholders will produce a curriculum which does not meet the needs of the industry. In summary the research has indicated that when developing a curriculum framework for the technical vocational education it is essential to state all the key stakeholders. The stakeholders are crucial for the production of a relevant curriculum.

The researcher enquired from the respondents their views regarding the unfolding of the Botswana's technical education. The respondents suggested that with a relevant curriculum framework they predict a technical and vocational education that will produce a graduate that is technologically and entrepreneurially skilled. That is, a graduate that is globally competitive and self-reliant. To support the above assertions, Nwosu & Monday (2017) declared that, for a country economically sustainable, there is a need for a programme of education that has

objectives that are focused and empower citizens with knowledge, skills and technical vocational education that trains learners to acquire skills for life.

***5.2.2. RQ 2: What steps can the Technical and Vocational Sector consider to effectively ensure the Development of a Quality Curriculum?***

Quality is very key in the sector of education whether at a basic level of education or at higher levels. Globally the nations aspire to have a quality curriculum which will produce highly skilled human resource which will contribute to the socio economic growth and the wellbeing of their people. Within that scope, it is important for the curriculum developers as the engine of the curriculum development process and the curriculum implementers to understand the concept of quality during curriculum. The participants in the study described a quality curriculum as a curriculum that will address the needs of the nation and the learner. And should be able to address the educational policies that are in place. They said the teaching and learning materials should be in line with the learning outcomes and the objectives of the programme. The respondents further said that a quality curriculum has relevant infrastructure and should equip the learners with relevant skills. Quality curriculum meets the standard that have been set, exceedingly satisfies the customers and stakeholders needs (Mari & Bjorn, 2018; Budharso & Tarman, 2020). A quality technical vocational education should mainly focus on three fundamentals of employability, competitiveness and job creation.

The key factors noted in the study were competency of the trainers, curriculum alignment, stakeholder involvement, resources and funding. This is consistent with the views posited by Ayonmike, Okwele & Okeke (2015) who mentioned that, quality in the education sector encompasses many aspects incorporating all the functions of education. Regarding trainers, the respondents assumed that qualified and trained personnel will produce competent graduates. With regard to that, there is a need for a continuous professional development for the trainers so that they can complete the gaps which may be brought about by the new trends

in their different fields. Concerning the alignment of the curriculum with respect to quality, it is important to ensure that there is an association among the learning outcomes, objectives, the resources and the teaching and learning materials and methods with the broader objectives of education nationally and internationally. It goes without saying that stakeholders' impact could enhance the quality of a technical and vocational education as the industry is the major consumer of the products of technical and vocational education.

Finally, for a quality technical vocational education to be produced there is a need for enough budget. Technical vocational education is a very expensive sector of education it needs to be well financed in order to achieve its mandate. According to the respondents currently the department is operating with insufficient funding which had led to lack of teaching and learning materials and this has led to quality of teaching being compromised. In conclusion, the study results for this section denotes that a quality curriculum is very noteworthy to take into consideration all the factors.

Following the factors that are required to develop a quality curriculum, the impact of a competitive quality curriculum was investigated. The study revealed that a quality competitive curriculum should be developed considering its impact on the learners. It was revealed that, it should equip the learners with lifelong skills that will sustain them in their professional and day to day living. A quality competitive curriculum will produce a well-rounded graduate (Twining, et al., 2021). To establish international competitiveness, creativity and innovation, the study revealed that there is a need for those that are engaged in curriculum development to network and collaborate with other institutions regionally and internationally (Senevirathne, Amaratunga, Haigh, Kumer, & Kaklauskas, 2022). To add more, the respondents echoed that it is crucial that the curriculum developers benchmark with other technical and vocational institutions internationally. To concur with these utterances, Nugroho & Jaqin (2021) benchmarking will help the curriculum developers to better their practices by comparing

themselves with other technical vocational institutions, moreover, they added that it is important for institutions to benchmark with each other in order to better their teaching and learning strategies and promote the curriculum development process.

***5.2.3. R Q 3: How does Misalignment between Certificate and Diploma Curriculum affect learner progression among the levels?***

Curriculum alignment is a very critical element of curriculum development. The respondents advocated for a constructively aligned curriculum. A constructively aligned curriculum is described as a structure founded on two qualities that is the “constructive and alignment.” constructive is founded on the theory of constructivism approach which allows learners to generate knowledge through learning and teaching activities and alignment of tasks to the learning outcomes by the use of suitable teaching activities (Biggs, 2014). The respondents emphasised that, there should be constructive alignment between the learning outcomes, teaching materials and the assessments. Furthermore, Wijngaards-de Meij & Merx (2018) added that, it allows for easy transition and quality teaching.

Regarding the alignment of the certificate and the diploma curriculum the respondents declared that there is minimal alignment because the curriculum developers for the certificate and diploma work in silos. As such that lead to curriculum misalignment in terms of content to be covered. This gap results in the mismatch of the learning outcomes and the required competencies. The mismatch can lead to ineffective delivery of the curriculum, misconception and insufficient student preparedness for the world of work. Additionally it may lead to under coverage of the key fundamental skills that are needed in the Diploma level. Furthermore if the foundational skills are not fully covered, it will result in the students having to retake some courses and this would be costly in terms of time and finances. The gap may lead to differences in assessment modes, and that will lead to students not being able to adjust in the diploma due to different structure and curriculum content Shaltry (2020) expressed that an aligned

curriculum is that which allows for smooth transition among levels. To ensure that curriculum alignment is achieved among the Certificate and Diploma, curriculum developers the two should consider the National Qualification Framework. Additionally, they should be a collaboration between the two. Working together of the two groups will lead to production of quality graduates, reduction in skills mismatch which will eventually lead to competent workforce. With regard to the factors that might hinder curriculum alignment, the respondents indicated two main factors, insufficient funding, lack of collaboration between the certificate and diploma curriculum are the main factors. Concerning the personnel who can assist to develop a coherent curriculum, the participants mentioned both internal and external stakeholders. Including stakeholders will promote curriculum relevance and competitiveness (Voogt, Pieters, & Handelzalts, 2018).

***5.2.4. RQ 4: To what extent does Lecturer involvement in Curriculum Development benefit the Botswana Technical and Vocational Education?***

It is consensus among scholars that lecturers are valuable in the development of curriculum. Lecturers are regarded as the engine of pedagogy. There are various factors that make lecturers to be critical stakeholders when developing a curriculum. They are research specialists, implementers and instructors of curriculum (Wilford, 2018). Moreover he further said that, they are specialists in developing the instructional tools (Mbarushimana & Allida, 2017). This research question wanted to find out how valuable is the engagement of the lecturers during curriculum development.

A five stage model (Analysis-Design-Development-Implementation-Evaluation) of curriculum development was proposed to lecturers and the researcher wanted to establish the stage at which the lecturers were engaged. The model was proposed because it is in line with the constructivist theory approach which signifies the critical participation of learners during learning (Matkovic, Tumbas, Sakai, & Pavlicevic, 2020). The results indicated that some



lecturers are engaged in the development stage and most of the lecturers are engaged at the implementation stage. This results show that the lecturers are not fully engaged and missing other stages such as analysis (goal setting), design (aligning of the learning materials to the objectives) and evaluation (checking the pros and cons of the programme) may hamper the quality of the curriculum. The lecturers indicated that, they would want to be engaged at all the levels of the program so that they can own the curriculum. With regard to the benefits, the participants rated their involvement highly. They believed that, their involvement would yield positive results in relation to the teaching methods, their motivation and better planning for the developed curriculum in terms of funding, teaching resources and capacity building. Chinyani (2013) conducted a study in Zimbabwe which revealed that non-involvement of lecturers' results in insufficient teaching materials and inadequate funding.

This study presented the problem relating to the minimal involvement of the stakeholders particularly the curriculum implementers and the impacts of segregation of the curriculum developers of the certificate and the diploma levels. The study findings indicated that indeed the implementers are not sufficiently engaged in the process of curriculum development, and this led to gaps which led to under resourcing of the programmes, under budgeting and lack of continuous professional development. The results emphasised the inclusion of the stakeholders at all the levels of the curriculum development process. The study revealed that, engagement of the stakeholders will produce a desirable curriculum.

Concerning the segregation of the two curricula during development. The findings disclosed that, there is a need for the two to collaborate together so that the curriculum can be aligned for the students to easily transition to the next level. Given the literature the results were expected. The educational scholars consent that, it is critical to engage the lecturers during curriculum development as they are experts in curriculum. They can assist in restructuring and aligning teaching methods to the learning outcomes and the overall educational objectives,

resulting in the development of a quality and relevant curriculum (Mbarushimana & Allida, 2017; Beyer & Apple, 1998). The study adds that those who have been mandated with the development of curriculum in Botswana should be capacitated in curriculum development process. This refers to both the curriculum implementers and the curriculum development officers. This would enable them to be able to produce a coherent and aligned curriculum. This research would enlighten those that are engaged in the sector of education in Botswana about the significant part played by the lecturers in the department of technical and vocational education.

#### Conclusion.

This section has discussed the implications of the study based on the research questions. The research questions investigated the competitiveness of the existing curriculum framework this was done through establishing the policies, personnel and model that inform the framework. Secondly, the study revealed the factors that are required to develop a quality curriculum. The study revealed that a quality curriculum is inclusive of the broader objectives of education both nationally and internationally. Inclusiveness can be achieved through benchmarking and networking with other institutions that offer similar programmes nationally, regionally and internationally. Thirdly, the research recognised the importance of an aligned curriculum, it discovered that there is minimal alignment between the certificate and diploma levels because the two departments work in silos even though their customer is the same. Lastly, the research discussed how the involvement of the stakeholders particularly the curriculum implementers can enhance the Botswana technical and education curriculum development.

### **5.3. Recommendations for Application.**

#### ***5.3.1. Teacher Capacitation.***

The effectiveness of the implementation of the technical and vocational education rests solely upon quality and the obligation of the lecturers. The study underscored the importance of fully engaging the lecturers and industry stakeholders in the curriculum development process. A collaboration with the relevant industries and TVET institutions will create a relationship in which both organisations value and apprehend each other's needs and come up with beneficial solutions for the betterment of the nation (Okeye & Arimonu, 2016). For lecturers more emphasis was placed on their engagement on curriculum development process. The research highlighted that, their engagement will close the gaps relating to content coverage and the teaching materials and pedagogy. The study further underlined the significance of teacher capacitation. It accentuated that the Ministry of Education and Skills Development through the Department of Teacher Training and Technical Education should ensure that staff are trained continuously so as to guarantee that they are consistent with the global technological changes that are in line with the technical and vocational education. Since the importance of lecturers during curriculum development had been proven capacity building programmes for lecturers should be included as part of the curriculum framework.

#### ***5.3.2. Capacitation of the Curriculum Developers.***

The study noted that there is a need for the curriculum developers to be capacitated on the process of curriculum development. The curriculum developers were just taken from the classroom as lecturers and given a mandate of curriculum development. They had not been trained on how to develop a curriculum. Some of them did have a post graduate qualification on education where they could have learnt some concepts on curriculum development. Though they have been capacitated through some short courses they believe that it is not adequate taking in to account the critical process of curriculum development. There are many factors

that are taken into consideration when developing a curriculum. It is critical that those that are provided with the mandate of curriculum development either at low or higher level be trained in carrying out the exercise. Capacitation will equip the curriculum developers with skills that will enable them to produce a competent curriculum. Likewise, the practitioners will be knowledgeable and would be able to relate the skills acquired to the requirements of the process and execute their duties better (Koobonye, 2020) The curriculum developer should be able to differentiate the types of curriculum they are to develop and how to align the course content to the level at which the programme is intended.

The detrimental effects of lack of capacitation of the developers goes beyond the alignment of the curriculum. It impacts the learners who are the consumers of the said curriculum and ultimately the nation as a whole. As for the graduates they will not be relevant to the industry as the curriculum taught will not match the needs of the industry. Botswana's employment market is in imbalance because of the mismatch between the graduates and the industry demands. This fact is crippling the nation's economic growth and competitiveness (Mmolai, 2020). Similar to lecturer capacitation the Ministry of Education and Skills Development through the Department of Teacher Training and Technical Education should take charge of ensuring that capacitation is carried out.

### ***5.3.3. Development of Technical and Vocational Education Policies.***

The study underlined that, the policies that are used in the development of the curriculum are outdated and hence there is a need for the sector to have a policy that is current which can address the current national cries of job creation and youth unemployment. The first policy that recognised the difference between technical and vocational education and the broader education was the Revised National Policy on Education. It acknowledged that TVET is a sector of education that offers skills for an exclusive job (Akooje & McGrath, 2006) in (Hondonga & Ramaligela, 2020) The Botswana vision 2036 objective concerning TVET is

education for production. It is important to have policies that will ensure that the vision is put into practice. The policy should clearly outline how technical education TVET should be carried out in order for the sector to address the broader Vision 2036 objective.

#### **5.3.4. Benchmarking.**

The other pertinent issue that the research highlighted is the need for a technical and vocational education segment which would create linkages with other TVET institutions beyond the borders. The research heightened that, the relationship will enhance an exchange of ideas and strengthen the skills transfer. Benchmarking will further open access to beneficial relations among the institutions such as learner exchange programs with other countries in which the technical vocational sector is well established. Benchmarking will bridge the gap between the current and the forthcoming improbabilities. This will make the institutions to be prepared and come up with attainable goals (Purwanto, 2020). Supporting the above, exchange of ideas will have a positive impact towards the production of a competitive TVET curriculum as they will integrate what they have learnt during benchmarking with their course content. The exchange program will offer the learners the opportunity to strengthen their competitiveness (Okolie, 2021). The Department of Teacher Training and Technical Education (DTT& TE) should allocate budget for exchange programmes such as benchmarking where lecturers and curriculum developers would exchange ideas with professionals who offer similar programmes. In summary, benchmarking will enhance the global competitiveness of the curriculum and produce globally competitive human resource and thus will strengthen the economic growth of the country.

#### **5.3.5. Funding.**

The significance of funds in the implementation of a quality technical and vocational cannot be overrated. The technical colleges in Botswana are owned by the government of Botswana through the Ministry of Education and Skills Development (MESD) and the private

personnel. Those that are privately owned are also regulated by MESD. The study focused on those that are owned by government. The government owned institutions are fully funded by government and the privately owned are funded through the payments of school fees by the learners. During the annual budget allocations MESD has always received the largest share. In the financial years of 23-24 and 24-25 it received BWP15.04 billion and BWP 28.60 billion respectively of the overall budgets. However, TVET sector is not allocated budget separately. Due to that it does not show how much funds had been allocated to TVET in order to show the inadequacies concerning budget allocation. This situation comes from way back, TVET used to be manned by the Ministries of Tertiary Education and Labour and Home affairs. Currently it is manned by the Ministry of Education and skill development. Throughout the years the government allocations for the sector of TVET has never been sufficient to meet the demands of the technical and vocational education sector.

To reduce the cost of running technical and vocational education, the sector can form partnerships with both national and international organizations which will assist with donation of equipment required in workshops and laboratories. Partnering with industry in offering technical and vocational education has proven to be possible as is stated that in Switzerland, technical and vocational education programmes are funded by both government and private companies where by private companies financed about 35% of the costs. The companies' recover the costs through the apprentices program (Hondonga & Ramaligela, 2020) Furthermore the Ministry can authorised to give the largest share of their budget to TVET because its development will have a positive impact on the country's socio economic status. Additionally to reduce the financial burden on government the institutions can carry out some activities which can generate income through the selling of the artefacts that are produced by the learners during their training. Furthermore, this training method will instill entrepreneurial skills to the learners. The major purpose is to incorporate the factor of education with

production where the acquisition of skills is tallied with theoretical knowledge (Hondonga & Ramaligela, 2020). Similarly, to curb the funding issue by government there is a need for synergy between the public technical and vocation institutions and industry. This will open possibilities of growth and exchange of skills and that could strengthen the implementation and curb the skills mismatch (Rudhumbu, 2022). The Ministry of Education and Skills Development (MESD) should emphasise education with production in the curriculum such that colleges generate income through selling of artefacts produced by learners during their training.

### ***5.3.6. Resources and Infrastructure.***

The significance of infrastructure in technical and vocational cannot be overruled. For the technical and vocational education to be effectively implemented, there is a need for relevant infrastructure which will allow learners to acquire relevant knowledge and skills (Rudhumbu, 2022). The research revealed that there is insufficient or obsolete resources in the colleges and this has made teaching and learning very difficult and time consuming as in some instances learners had to share the resources. Moreover, the insufficiency of relevant resources has led to lecturers resorting to teacher centered method of teaching rather than learner centered method. To add more, Oshima, Ushe & Jerald (2023), affirmed that, major hindrance in offering the technical and vocational education in Botswana is inadequate facilities. Among others are the, workshops and laboratories that hinder the quality teaching and learning. This has unfavorable effects. That is, there is minimal practice for the learners, furthermore this contradicts the objectives of the sector of producing entrepreneurially skilled graduates. Additionally, this may increase the unemployment rate as the graduates may not fit in the industry.

To complement the above sentiments, in the study conducted by Oshima, Ushe & Jerald (2023) their results indicated that, 82% of the respondents believed that infrastructure is not sufficient in technical and vocational education institutions. This inadequacy has resulted

in the failure of adequately executing the technical and vocational education mandate of properly offering quality education that would yield competent graduates. They noted that, computer laboratories, classrooms and workshops are the major factors during the delivery period. Furthermore the study revealed that it is crucial to note that the absence of up to date infrastructure specifically in information communication technology (ICT) has negative consequences on the effective offering of technical and vocational teaching and learning techniques. As well, the study assumed that, ICT usage in TVET, can enhance the use of e-learning methods which can add to the quality of education as it may lead to creativity and innovation, accessibility to education and this will result in the production of independent and market ready graduants. Furthermore they postulated that, the above could only be achieved if relevant ICT resources and adequate infrastructure are in place (Oshima, Ushe, & Jerald, 2023). DTT and TE should provide relevant infrastructure if they need to be relevant.

### ***5.3.7. Curriculum Alignment at Certificate and Diploma Levels.***

Alignment of curriculum among the levels is very critical. The respondents mentioned that, there is a need for synergy among the certificate and diploma offering curriculum developers. They echoed that, the collaboration between the two groups would not produce only a quality curriculum but will result in the production of competent professionals who are ready for the market. Readiness for the market will improve the economic standing of Botswana globally as it will improve its human capital. As revealed from the study, collaboration between the certificate offering and diploma curriculum developers would enhance transition of the learners from one level to another and further improve on the alignment of the teaching strategies and content to be taught. This will further bring to the table a common understanding of the content by both the implementers across the levels. A properly aligned curriculum would enhance the efficacy of the curriculum discussion. These discussions would result in identification of variances and overlaps that may not be easily identified when



working in silos. Working together by the two groups is advantageous because they will understand issues from a common perspective (Shaltry, 2020). In a nut shell, alignment of curriculum would help the learner to relate their previous knowledge with the current knowledge that is being taught. This resonates well with the constructivist theory which empathizes on the learner creating knowledge by using the past experiences. Currently the two departments are manned under the same ministry as the Ministry should ensure that they work together.

### ***5.3.8. Industry Stakeholders' participation.***

Technical and vocational education has a significant role in the provision of labour to the industry, as such collaboration with the industry cannot be over underscored. When responding to the factors that are affect the quality of the curriculum, the respondents rated the fully involvement of the industry stakeholders highly. They highlighted that stakeholders need to be fully engaged in all the curriculum development stages starting from analysis stage up to evaluation stage. They believed that the inclusion of the industry will inform the content on which occupations are scarce in the country. Collaborating with the industry can also assist in capacitating the staff and learners with the new trends in the industry. This will also help the technical and vocational education by that, when lecturers bring forth the pedagogical skills, the industry will provide information concerning technological diversification. In addition, stakeholders may assist in the incorporation of the current technologies in the curriculum (Porter, Portillo, Gallimore, & Barnett, 2020)

In order to develop a curriculum which is relevant to the industry needs, the curriculum developers should establish industry academia collaborations where they form partnerships with industry representatives who will ensure that, curriculum developers understand market needs and align programs accordingly. Additionally the curriculum developers need to collaborate and establish stakeholder engagement forums in which they involve employers,

educators and policy makers. This will help in refining curricular to match the National and Global trends.

In summary, this section discussed the recommendations for application of the study results regarding capacitation of both lecturers and the curriculum developers. Firstly, the recommendation were influenced by the respondents' revelation that they believe that both the lecturers and curriculum developers have not been trained on curriculum development process. They asserted that, for one to be involved in the process of curriculum development they need a qualification to carry it out properly. Secondly, a recommendation was made to develop a new policy that will focus on the current technical and vocational education sector as the policies that are being used are outdated and cannot cope with the rapidly changing technological world. Thirdly, the section discussed the need for the technical and vocational education to benchmark with other institutions that offer similar programmes regionally and internationally. It forwarded the benefits of collaborating with other institutions in enhancing their operations and the quality of their graduates. Fourthly funding streams that could help in the operation of TVET had been discussed.

The research revealed that there is a need for the sector to find ways of funding its activities as it is clear that government alone cannot be able to do so. It is important that the department recover the costs through the artefacts that the learners produce during teaching and learning. Fifthly, the resources and infrastructure, this section has discussed the impact of the relevant resources and infrastructure to the sector of technical education. It has discussed that without the necessary resources and infrastructure delivery at the institutions will be hampered and that led to the production of incompetent graduates. Incompetent graduates would led to increased unemployment rate. The high unemployment rate resulted in low socio economic status and impacted the economic competitiveness of the nation. The low socio economic status of the people would defeat the Botswana 2036 vision of prosperity for all.

Lastly the study revealed the importance of industry stakeholders in the development and implementation of the curriculum. It noted that stakeholders are crucial at all the levels of the curriculum development. Moreover they can assist with the alignment of the curriculum to the ever changing technological world in terms of the currency of the resources required. Additionally, it discussed that collaboration with stakeholders can be valuable in various areas such as financing, recommending content to be covered.

#### **5.4. Recommendations for Future Research.**

##### ***5.4.1. Adding on the Results of the Current Study.***

In cases where the results of the study cannot conclude on a certain concept. For instance, when results that are not expected are discovered in the study, a study can be conducted which add more to the current study. The contemporary study could not reveal that the current curriculum framework being used is suitable for the technical and vocational sector in Botswana. The researcher recommends that, further research should be conducted to investigate the suitability and sustainability of the Develop A Curriculum Model. This should be conducted because the respondents revealed that no research was carried before the model was used. It should be checked whether it has the capacity to take Botswana to a knowledge based society which the country aspires to be by the year 2036. Botswana needs a model of curriculum that can produce graduates that are competent locally, regionally and internationally. To achieve this, there is a need to carry out a research that will inform the curriculum on which model to use so as to satisfy vision 2036 and the global sustainable development goals. In conclusion, the model should concentrate on the current and the future needs of the nation and add value to the socio economic status of our nation. The nation is banking on the sector of technical and vocational training (TVET) in changing the landscape of its economic status and reduction of the youth unemployment. To that effect, there is a need for a robust curriculum model of technical and vocational education that can address these

needs. The researcher suggest the use of the Analysis Design Development Implementation Evaluation model of curriculum development. This is an organized model which consists of components which are meticulously related to one another. During curriculum development the learner is placed at the center regarding the qualities, anticipations and the learning environment. This resonates well with the constructivist view which places the learners' experiences and expectations first.

#### ***5.4.2. Curriculum Implementation.***

The curriculum implementation phase is the imperative measure of the curriculum development. This stage informs the developers whether the curriculum developed achieved what it meant to serve. It involves helping the learners to attain the knowledge that is required in the curriculum. Therefore, it is important to carry it with due diligence because if it is not done with carefulness, the results will be detrimental to both the individual and the nation as a whole. For the individual it would mean that they would not fit well in the job market. For the nation it would mean wastage of money used for training and incompetent human resource. Furthermore there are many factors that influence curriculum implementation among others is the instructional supervision and assessment (Mitchell, 2016).

The research results indicated that there is a need for a comprehensive curriculum implementation that will strengthen the quality of learning in technical and vocational education. Technical and vocational education's pivotal role of preparing the person for the workplace cannot be overstated. With that it is crucial to investigate the extent at which the curriculum implementers are confident regarding curriculum delivery and establish a link between implementation of the curriculum, methods of teaching, objectives and their impact on the quality of the graduates produced. The exploration of these study constituents would ascertain the methods of teaching that would add value or impede the quality of the implementation Moreover, the research will assess the efficiency of the diverse pedagogical

methods such as, experiential learning and infusion of ICT in technical and vocational education and training. Technology is very important in technical and vocational education as it provides exceptional data that will help learners to satisfy their work roles. Furthermore, information communication technology (ICT) is significant in the implementation of technical and vocation education programmes because it can enhance the learners' understanding of concepts through simulations (Naidoo & Dawuwa, 2019). These simulations will help in cases where there is insufficient or lack of relevant resources.

#### ***5.4.3. Collaboration of the Certificate Curriculum Developers and the Diploma***

##### ***Curriculum Developers during curriculum development.***

It is relevant to conduct a research which will investigate the importance of collaboration between curriculum developers at the certificate and diploma levels in technical and vocational education and training. This research will help in creating a seamless progression route for learners who would want to further their studies after completion of the certificate level by ensuring that key competencies required in the next level are covered and learners do not miss some skills. Moreover it will improve the relevance and quality of the technical and vocational education.

There is a need for a seamless collaboration between the Certificate and Diploma curriculum developers. The collaboration will ensure the development of a coherent, aligned curriculum which will foster easy transition from one level to another. The collaboration can be achieved through capacity building for curriculum developers; that is, comprehensive training programmes should be in place whereby curriculum developers undergo formal training in curriculum design pedagogical alignment and industry relevance. This can be achieved through continuous professional development, post graduate Diploma programmes and specialised certifications. Capacity building provides opportunities for the knowledge acquirement and sharing of experiences (Dako-Gyeke, et al., 2020) Additionally, Mentorship

and peer learning system can be organized whereby, the more experienced curriculum developers guide the new ones. This will ensure knowledge transfer and practical understanding of curriculum alignment.

Collaborative curriculum development will enhance interdisciplinary collaboration among curriculum developers to come up with an all-inclusive method to education (Newell, Doty, & Klein, 1990). The interdisciplinary approach will enhance creativity and innovation among the levels of education as it will explore prospects for combined development of tasks that will merge the skills from the learners from the certificate and diploma levels.

It is necessary for the sector of technical and vocational to come up with a standardized curriculum development framework with clear guidelines and policies that will ensure that, it adopts standardized curriculum development policies that outline necessary skills, training, and qualifications required for curriculum developers. In that way, content will be organized in a way that easily allows continuity among the programmes of learning (Acquah & Owusu, 2021). Furthermore, the framework will act as a quality assurance mechanism. That is, a structured review process should be implemented to ensure curricula remain relevant and responsive to societal and industry needs.

To improve the quality of technical and vocational education, it is key to have a sustainable collaboration between the curriculum developers at both Certificate and Diploma levels. This cross-institutional collaboration between the certificate and diploma level will create a seamless educational pathway that ensure progression from lower to higher education levels. Moreover, it is critical to ensure continuous review and feedback of the curriculum to guarantee that the curriculum is current and relevant. Therefore, there is a need for the curriculum developers to collaborate in order to establish a system for regular curriculum assessment and updates based on student performance, graduate employability, and industry feedback. To allude to the above, collaboration of the two curriculum developers will ensure

that the methods of assessment and the tools used for assessment measure precisely the achievement of the learning outcomes at various levels (Moirano, Sánchez, & Štěpánek, 2020).

#### ***5.4.4. Funding Streams.***

There is an urgent need for diversification of funding streams if sector need a quality technical and vocational education. The inadequacy of the resources and infrastructure is a sure sign that government cannot do it alone. Funding has a critical role in the worth of technical vocational education. This sector requires teaching and learning materials, laboratories and information communication technology that can cope with the new trends in the industries. With the above views, there is a need for an investigation proposing the effective funding streams which can sustain the technical and vocational sector so that it achieves quality teaching and learning. The study should investigate how other countries regionally, internationally diversify their funding models and benchmark from them. This will make them to get the best practices which may assist them. Additionally the sector can engage in community partnerships where the private sector can assist with innovative funding ideas. It is also crucial to assess and evaluate the extent at which the industry is involved in the funding of technical and vocational education and training (TVET). Furthermore, it is crucial to find out the influence of government policies in the funding of (TVET). For example Botswana had a cost sharing policy which was introduced in 2006 with the intention of reducing the financial burden of training costs from government. According to the policy, the learner had to pay a certain amount for their training. Currently the learners no longer pay for their training. It is important to investigate what led to the policy being inactive and how it can be resuscitated.

The technical and vocational sector can come up with funding models which can assist in recovering the training costs. Institutions produce artefacts during training which can be sold to recover the training costs. This can also be beneficial as the learners will learn entrepreneurial skills alongside their vocational skills. In conclusion if this research could be

carried out, it will assist the sector with models of funding that are sustainable and thus provide quality teaching and learning resources and infrastructure. Furthermore it will relieve the government the financial burden of financing the sector. That is, it may reduce the budget allocated to the Ministry of Education and Skills Development and divert the money to other national projects.

***5.4.5. The Level of engagement of Stakeholders in the operation of Technical and Vocational Education.***

Stakeholder engagement remains very crucial in the implementation of technical vocational education. Their involvement is paramount for several reasons, for example; an operational partnership with the industry enhances the alignment of the programmes with the needs of the industry, reduces mismatch of programmes and ensures production of graduates who are competent and are equipped with skills that are in demand. Industry is the potential employer of the technical and vocational education graduates as such it is crucial to engage in a study that investigate the level of their participation in the development and training of the technical and vocational programmes in order to ensure that the developed programmes meet the recent demands of the industry. This study should focus on the contribution or participation of the stakeholders in ensuring that the curriculum is current and it can keep up with the changing industry technological demands.

To add more, to ensure that the skills that the learners acquire are relevant and can accord the learner the opportunity for employment and job creation. The learners in technical education are required to go for work placement so as they can experience a work space environment and to put the skills that they had learnt in the classroom setting in to practice. With that it is suggested that a research should be carried out to investigate the level at which the industry accord the learners the opportunity to carry out their work placement in their industries.



Consistent engagement of stakeholders provides feedback to the sector as the industry personnel are experts in their area as such they can provide constructive feedback which will assist the sector to evaluate the competence of their programmes. Involvement of the stakeholders can enhance the continuous progress of trainers through exchange of ideas and thus reducing the skills gap. Doing so, will ensure that technical and vocational education is always relevant and responsive to industry needs. Accordingly, the industry can mobilize resources and assist the TVET sector in terms of funding and donating equipment among others (Msibi, 2021). Moreover, the industry can afford the technical and vocational education trainers the opportunity for training in their industry in order to close the gaps that might have been brought by the new trends in the industry and this will assist the trainers to remain relevant in the industry. Technical and vocational education sector and industry collaboration can enhance credibility and increase the reputation of the technical and vocational sector as the curriculum developed will be aligned with the industry needs, and would strengthen graduate employability (Belita, Carter, & Bryant-Lukosius, 2020). To sum up stakeholder collaboration has a positive impact in the implementation of a quality technical vocational education it is essential as it would produce competent and skilled workforce that will upgrade the economic competitiveness of Botswana.

To sum up this section has discussed the recommendations of the future research in terms of adding on the current research. This is where by the researcher believes that from the findings of the investigation the study could still be carried further. Secondly, the research has recommended a further research could be carried out regarding the curriculum implementation methods, which is the teaching and learning methods and the teaching materials. Thirdly, the effectiveness of the collaboration between the certificate offering institutions and their impact on the transition and competency of the curriculum have been suggested that a study should be carried out to investigate the importance of collaboration between the Certificate and Diploma

curriculum developers. Fourthly, in this section, the results of the study underscored the significance of the sector in diversifying its funding streams rather than depending on government alone. The results of the study revealed that government can no longer carry the burden alone. With that a study on diversification of funding streams by the technical and vocational education has been suggested. Lastly, minimal stakeholder involvement had been seen as one of the factors that hinder the progress of the technical and vocational sector. With that, the study proposed that a study on the level at which stakeholders participate in the learning and training of the technical vocational learners be investigated.

### **5.5. Conclusions.**

Firstly the knowledge concerning curriculum development would produce competent graduates as they would have benefitted from quality education Secondly, as for the curriculum implementers and curriculum developers, it would help in their professional development through training on the process of curriculum development. Thirdly, regarding the Ministry of Education and Skills Development the technical and vocational sector and the country as a whole would benefit because the curriculum produced would be of quality and thus produce competent graduates who would add value to the improvement of the socio economic status of the country.

The process of curriculum development was described as a process which involved ways in which knowledge impartation and assessment should be carried out. More focus is placed in collection of ideas, review and content coverage (Dopson & Tas, 2004) Furthermore, Vreuls, Koeslag-Kreunen, van der Klink, Nieuwenhuis, & Boshuizen, (2022) summarizes it as a “plan of learning.” To sum up, it had been discussed as an organised process of coming up with a holistic plan of education which includes the entire design. Its purpose is to guide the educational implementer’s frameworks, the content to be covered, the aims of the curriculum, the assessment criteria and the resources needed to run the programme. The process of

curriculum development encompasses many steps as alluded in the Analysis Design, Development Implementation Evaluation model (Spatioti, Kazanidis, & Pange, 2022). In the analysis stage, it involves identification of the needs of the learners, society and the overall national and international educational needs. Likewise it involves the establishment of the primary aims and objectives. The latter accord the general direction while the former provides the specific, assessable learning outcomes.

The design phase's intention is to come up with a framework of how the structure should look like, that is, the categorization of the modules and the learning activities. This encompasses the range, teaching methods and modes of assessment. Additionally, it is the stage where content and suitable learning materials are chosen and aligned with the aims and the learning outcomes of the course. The development stage involves developing the teaching and learning materials, teaching methods, class activities and assessment methods in accordance with the module. The implementation stage is the stage of action where the curriculum is put into practice by the implementers in the classroom. The program may be modified if there are any gaps realised during the process of implementation in order to ensure that it produces the quality of learners that are desired. The evaluation stage requires regular appraisal in terms of formative and summative assessment of the curriculum in order to get feedback from the implementers, the learners and the stakeholders (Spatioti, Kazanidis, & Pange, 2022; Handrianto, Jusoh, Goh, & Rashid, 2021).

This research's theoretical framework was based on the constructivist theory along the thoughts of Jean Piaget and Seymour Papert who highlighted the significance of learners being fully engaged in their own learning and by actively interacting with their surrounding during learning. The above discussed model relates well with the constructivist theory though they originate from different perspectives, The Analysis, Design, Development Implementation Evaluation (ADDIE) model encourages inclusion of the learning experiences during planning

, definition of the objectives, selection of content and proposal of the learning activities. The constructivist theories advocate for learner centered activities and the learner to relate their experiences to the content being taught. The constructivist theories encourage creativity and innovation by inspiring learners to create artefacts and items through the use of resources to come up with meaningful projects. This aligns with the development phase where there is creation of the teaching materials. The implementation phase, aligns with the constructivist theorists, in the manner that, it is the phase where real content delivery is taking place and tasks are put in to practice in the classroom environment. The learners are actively involved, they interact and collaborate with each other, and this aligns well with the constructivist theory.

The study was a mixed method study which combined both qualitative and quantitative research. The study had 93 lecturers, 6 curriculum developers and 1 quality assurance and assessment officer. The 93 lecturers were sampled purposively because they are familiar with the subject under study. The curriculum developers and the quality assurance and assessment officer were sampled using convenience sampling because of their proximity. The study had four research questions. Qualitative data collected from study was analysed thematically and the data from the quantitative study was analysed by the use of Statistical Package for the Social Sciences (SPSS). The results were presented in both narrative and tabular form. The research question one (RQ1) covered the curriculum framework, in which the study's aim was to find out whether the curriculum implementers are aware of the framework that is being used and its suitability to the needs of the learners and the nation's needs. Moreover to find out whether the framework is globally competitive. The results revealed that the participants are aware of the curriculum framework and what it should entail. Regarding its contents, an emphasis was put on the teaching methods and assessment criteria. The respondents underscored that, the curriculum framework should emphasise the acquirement of the entrepreneurial skills so that

the graduates can exercise those skills after completion of their studies in cases where they are not absorbed in the labour market.

The results of the study advocated for revision and formulation of the technical and vocational policy which would address the new technological trends which are faced by technical and vocational education sector due to the rapid technological changes. The results revealed that the current policies that are being used are obsolete and cannot fully address the vision 2036 of the country which envision a digitized Botswana. The respondents revealed that the model of curriculum in use is an outcome based referred to as Develop A Curriculum Model. Though the model is an outcome based model, the respondents had alluded that it was implemented without first carrying out a study to find out the needs of the society. They believed that this might have detrimental effects to the technical and vocational sector as the future unfolds. It was suggested that there is a need for a study to be carried out to check the suitability of the model to the nation's educational agenda. A more practical method was suggested by the respondents. An 80% practical and 20% theory was suggested they said that, the purpose of technical and vocational education is to impart lifelong skills to the learners so that they can be self-reliant and create employment.

Quality technical and vocational education was described in the view of a competent curriculum which can produce competent human resource who can contribute to the sustainability and growth of the nation's economic development. Competence of the curriculum objectives in addressing the needs of the society was highlighted. It was underlined that, a quality education should equip the learners with the skills and knowledge that are competent and relevant to the rapid global technological changes. Three key factors that the respondents stressed which they believed are prevalent regarding a competitive quality technical vocation are employability of the graduates, global competitiveness and relevance to the employer and the needs of the country. Different opinions were discussed regarding the

factors to consider when developing a quality curriculum. Those included the conduciveness of the learning environment, that the environment should enable ease of learning, fully furnished laboratories and workshops, qualified and competent human resource and aligned curriculum among all the levels. Particular attention was conferred to addressing the stakeholder's needs, satisfying the needs of the country and the resources and new technology.

Curriculum alignment was evaluated in order to find out the significance of curriculum alignment among the levels of education especially the certificate and diploma programmes under study. It was concluded that curriculum alignment is beneficial to the learners as it will ease transition from one level to another. It was further said that, alignment will ensure that there is coherence regarding the teaching methods, content, the expected learning outcomes and the resources. The study concluded that to ensure alignment of the certificate and the diploma offering, there is a need for the certificate curriculum developers and diploma curriculum developers to collaborate and work together. As well, the study revealed that, it is necessary to take in to account the National Credit and Qualification Framework (NCQF) of the country.

The benefits of curriculum alignment were cited as improving the quality of the graduates, elimination of skills mismatch, allow for easy transition and easy articulation of the curriculum by the implementers. The hindrances of curriculum alignment were related to the collapse of the industry stakeholders' full participation in curriculum development, under financing and untrained curriculum developers. It was revealed that for a curriculum to be aligned there is a need to engage relevant personnel such as lecturers and industry stakeholders. It was concluded that teacher involvement would improve the relevance of the teaching methods and the industry stakeholders would add value to the type of infrastructure, technology and content that is required by the industry for the production of skilled and competent graduates.

The study results endorsed that the lecturers and industry stakeholders should be involved at all the stages of the curriculum development process. For example at the analysis level both can assist in the needs analysis, it was discussed that the industry can provide information of what is required, so that the programme could be relevant to their needs. At the design level stakeholders can assist with the teaching methodologies and the industry can offer some expertise and close the gaps where the lecturers lack. Regarding the development stage, assistance could be offered on how the programme should be assessed both at formative and summative level. With regard to the implementation phase the implementers and the industry stakeholders will assist to restructure, and improve the product. In the evaluation phase the stakeholders would assist with information regarding the feasibility of the curriculum developed. Lastly the significance of the lecturers and the industry personnel had been seen as very crucial. The lecturers as the implementers will inform the curriculum developers of the strengths and the weaknesses of the programme on the other hand, the industry as the consumers will provide information on the level of the skills the graduates had acquired, that is whether they are fit for purpose or not.

The study had discussed how the research is applicable other different sectors of education in the country. It had been discussed that the research could be applied to the management of the technical and vocational education, as well as the Ministry of Education and Skills Development especially the sectors that deal with the process of curriculum development. The benefits are among others are; strengthened quality technical vocational education, in terms of curriculum alignment, trained lecturers, graduates that are relevant to the industry and entrepreneurially skilled. The outcomes of the above will reduce unemployment rate. Moreover, it will enhance the competitiveness or image of the technical and vocation sector in general.

Teacher capacitation and stakeholder involvement benefits were discussed. It was said that, for the technical and vocational education to remain relevant, there is need to fully engage the lecturers and industry stakeholders in curriculum development. A collaboration between the technical and vocational education and the stakeholders would create a conducive working relation which would benefit the entire nation. This will further close the gaps relating to relevance of content, teaching materials and teaching methods. The significance of teacher capacitation was underscored in the study and the respondents advocated for continuous training of the lecturers so that they can be able to meet the demands of the global technological changes.

This research further discussed the need for the training of the curriculum developers. This was prompted by the fact that the curriculum developers do not have a qualification on curriculum development. It had been revealed that they were provided with short trainings which assisted but that was not enough. Furthermore, the study revealed that some of curriculum developers do not have a training on education. Curriculum development is a very sensitive area in education which need fully trained personnel who would fully understand all the stages which accompanies it. Training of the curriculum development officers would without saying, improve the quality of the technical and vocational education curriculum and equip them with the skills which would make it easier for them to execute their duties.

The detrimental effects of untrained curriculum developers cannot be overrated, their impact were argued as the mismatch of the curriculum with the needs of the consumers, an imbalance of the labour market due to the mismatch of the graduates with the employer's needs, moreover, it might cripple the nation's economic growth and competitiveness which might be brought about by incompetent human resource. The study further discussed the impact of relevance and currency of policies for the development of a quality curriculum. The study revealed that the current policies that inform technical and vocational education are obsolete



and are not up to date with the current changes, as such there is a need of the development of a technical and vocational policy which can meet the current demands of the industry and satisfy the country' 2036 national vision which advocates for “education with production”.

The critical need of the sector of technical and vocational education to benchmark with other institutions which offer similar programmes was highlighted by the research results. It was discussed that, there is a need for the curriculum developers to create a relationship with other institutions so as to learn best practices and exchange of ideas with them. Additionally the research conferred that, benchmarking with other institutions would open doors to valuable relationships such as learner exchange programmes, bridging gaps and most importantly, integration of their ideas with those that they had learnt from their counterparts. Furthermore, the research showed that benchmarking would strengthen competitiveness of the curriculum.

The critical impact of funding in technical and vocational education was discussed. The research revealed that for the sector to produce a quality curriculum there is a need for sufficient funding. It was revealed that, funding for the public technical and vocational sector is fully dependent on government through the Ministry of Education and Skills Development. The research study revealed that government alone is not capable of satisfying the training demands of the different programmes. The respondents suggested other funding streams that can be implemented in order to assist the government regarding funding of the programmes. Some of the funding streams suggested formation of partnerships with national and international organizations. They said this can offer assistance in the form of donations such as equipment that can be used in the laboratories and workshops. Additionally, it had been encouraged that, the institutions should reduce the government financial burden through selling artefacts that had been produced during training. This would not only assist in financing the sector but would also equip the learners with entrepreneurial skills. Moreover, this would achieve the mandate

of vision 2036 of education with production and strengthen the competitiveness of the curriculum.

Relevant resources and infrastructure importance during implementation of curriculum is of high value. It goes without saying that there is a need for relevant and current resources and infrastructure in order to offer quality education to the learners. The research revealed that resources and infrastructure are obsolete in the schools as such there is a need for resources that are relevant. The obsolete resources and infrastructure have unfavorable effects to the sector as the graduates would not be abreast with the new trends in the industry. Teaching with insufficient resources would encourage lecturers to use teacher centered methods which are required by the Develop A Curriculum Model of curriculum being used. This further led to production of graduates who are practically skilled. Further discussions were made concerning the usage of ICT in technical and vocational education to enhance the quality of education. It was assumed that the use of ICT may foster creativity and innovation.

Curriculum alignment at the certificate and diploma level had been deliberated. The study revealed that the certificate and the diploma offering develop their curricular independently. It was suggested that the two groups should collaborate. Collaboration would ensure coherence of the curricula among the levels. This would ease transition among levels and learners would be able to relate their past experience with the content of the next level. This resonates well with the constructivist theory of learning. Furthermore, working together would eliminate the gaps that might be encountered and be able to address the issues from a common understanding.

The crucial influence of the industry stakeholders during curriculum development had been revealed in the study. Industry had been discussed as the significant employer of the graduates of the technical and vocational education. The research revealed that they should be consulted. Their consultation would ensure that the content covered in the curriculum is what

is required by the industry. The research highlighted that, fully engagement of the industry would be beneficial to both staff and students where there are gaps such as lack of resources. The staff and the learners may be attached to the industries. This will equip the staff with continuous professional development. The learners will have the opportunity of practicing and gaining more skills which cannot be offered at their schools due to lack of the required resources.

The study managed to answer the research questions raised in the study and on the other hand new questions were raised from the data collected. The new questions, created possibilities for a future research on the topic studied. The future research recommendations were noted as follows: an addition on the result of the current research, how teaching and learning methods can impact the quality of the graduates, how an aligned curriculum can improve the enrolment rate of the technical and vocational education colleges and graduates competencies, how diversification of funding streams can reduce the financial burden on government and lastly how industry stakeholders and curriculum implementers engagement at all levels of curriculum development can improve the quality of TVET.

Regarding further research on the current study, the researcher realised that the current study could not reveal the suitability of the current curriculum model to the technical and vocational sector. The researcher recommended further research regarding its suitability and sustainability in satisfying the industry and national needs. This was influenced by the respondents' sentiments that the model was implemented without a study being carried out. A future research study was also recommended in relation the phase of curriculum implementation. This phase concerns delivery of the curriculum developed. It informs the curriculum developers of the strengths and the weaknesses of the developed curriculum. From the research the results revealed that this is a crucial stage that need further research regarding the level of confidence of the lecturers in terms of delivery (teaching methods, use of

information and communication technology (ICT)). The study revealed lack of competence of the lecturers concerning assessment writing (both formative and summative). Furthermore, research was recommended concerning the collaboration of the certificate offering and the diploma offering curriculum developers. The research suggested that an investigation of how the collaboration of the certificate and diploma offering curriculum developers would improve the quality and image of technical and vocational education in Botswana. It was heightened that this collaboration would guarantee seamless coherence of the learning outcomes between the two levels and thus result in easy articulation of the content and learners would easily relate the previous knowledge with the current content. The collaboration would result in an interdisciplinary partnership among the two groups which will incorporate an all-inclusive method to education which will strengthen creativity and innovation amid these levels of education. This would further be beneficial to the sector regarding the relevance of the assessment tools at both levels. Furthermore the collaboration would be beneficial as the curriculum development personnel would share expertise and experiences which would make them to close each other's gaps, which would result in professional growth. It is assumed that the collaboration would close the gaps of lack of resources. This could be done through resource sharing in cases where an institution does not have a particular resource for a particular module they can offer it in another institution where it is available. The same applies in cases where there is shortage of staff in a particular subject in a certain school and is available in another, they can always assist one another.

A research in diversification of funding streams by the institutions of technical and vocational education in order to assist government had been recommended. The research had revealed that there is shortage of resources in schools which is a result of insufficient budget allocation from government. With that the researcher recommended a future research concerning diversification of funding streams in order to arrest the situation. The researcher

proposed an investigation on introduction of funding streams that can sustain technical and vocational education in order to achieve quality teaching and learning. The study should investigate how the different funding streams could be implemented. Furthermore, the study should focus on the funding models which can help to recover the costs which were encountered during training. A research on the level of stakeholders' engagement was also proposed. This research was proposed to investigate the level of stakeholder involvement in the curriculum development and implementation. The findings of the study indicated that consistent involvement of the stakeholders could yield positive results such as constructive feedback from industry experts, which will enhance continuous programme improvement. Industry can also assist in mobilizing resources in the form of monetary or equipment which will assist during training.

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## APPENDICES.

## Appendix A: UREC Approval

 <span style="float: right;">UREC Decision, Version 1.0 <input type="checkbox"/></span>	
Unicaf University Research Ethics Committee Decision	
<b>Student's Name:</b>	Melilah Mosekiemang
<b>Student's ID #:</b>	R1810D6619315
<b>Supervisor's Name:</b>	Professor Helen Adebola
<b>Program of Study:</b>	UUZ: EdD Doctoral of Education
<b>Offer ID /Group ID:</b>	O59867G63625
<b>Dissertation Stage:</b>	3
<b>Research Project Title:</b>	Quality Technical Vocational Education In Botswana: A Crucial Requirement For Curriculum Development
<b>Comments:</b>	No comments.
<b>Decision*:</b>	A. Approved without revision or comments
<b>Date:</b>	22-Aug-2023
<small>*Provisional approval provided at the Dissertation Stage 1, whereas the final approval is provided at the Dissertation stage 3. The student is allowed to proceed to data collection following the final approval.</small>	

## Appendix B: Provisional Approval.



REAF\_DSPA - Version 1.0 AP

### UNICAF UNIVERSITY RESEARCH ETHICS APPLICATION FORM DOCTORAL STUDIES PROVISIONAL APPROVAL

The Provisional Approval - Research Ethics Application Form (REAF) should be completed by Doctoral level candidates enrolled on Dissertation stage 1.

This form is a **provisional approval** which means that the UREC committee has accepted the initial description of the project but this is conditional as changes may have to be implemented following Dissertation Stage 2 and piloting in Dissertation Stage 3.

**This is a conditional offer and acceptance of the project needs to be verified and confirmed upon completion of the Research Ethics Application Form in Dissertation Stage 3.**

#### Important Notes:

- An electronic version of the completed form should be uploaded by the student to the relevant submission link in the VLE. Student's supervisor will then review the form and provide feedback commentary. Once supervisor's initial approval is given then the supervisor will forward this to [doctoral.studies-aa@unicaf.org](mailto:doctoral.studies-aa@unicaf.org), for provisional approval by the Unicaf University Research Ethics Committee (UREC).
- Please type your answers and **do not** submit paper copy scans. Only *PDF* format documents should be submitted to the committee. It is recommended to use free version of Adobe Acrobat Reader available online: <https://get.adobe.com/reader/>
- If you need to supply any supplementary material, not specifically requested by the application form, please do so in a separate file. Any additional document(s) should be clearly labelled and uploaded in the relevant VLE link.
- If you have any queries about the form, please address them to your dissertation or project supervisor.

## Appendix C: Blank Informed Consent Form



UU\_IC - Version 2.1

### Informed Consent Form

#### Part 2: Certificate of Consent

**This section is mandatory and should be signed by the participant(s)**

**Student's Name:** MELITAH MOSEKIEMANG

**Student's E-mail Address:** meltmore2012@gmail.com

**Student ID #:** R1810D6619315

**Supervisor's Name:** Professor. Helen Adebola

**University Campus:** Unicaf University Zambia (UUZ)

**Program of Study:** Doctor of Education

**Research Project Title:** Quality Technical Education in Botswana. A crucial requirement for curriculum development

I have read the foregoing information about this study, or it has been read to me. I have had the opportunity to ask questions and discuss about it. I have received satisfactory answers to all my questions and I have received enough information about this study. I understand that I am free to withdraw from this study at any time without giving a reason for withdrawing and without negative consequences. I consent to the use of multimedia (e.g. audio recordings, video recordings) for the purposes of my participation in this study. I understand that my data will remain anonymous and confidential, unless stated otherwise. I consent voluntarily to be a participant in this study.

Participant's Print name:

Participant's Signature:

\_\_\_\_\_

Date:

#### If the Participant is illiterate:

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had an opportunity to ask questions. I confirm that the aforementioned individual has given consent freely.

Witness's Print name:

Witness's Signature:

\_\_\_\_\_

Date:

## Appendix D: Ministry Approval.

Web of Science
InCites
Journal Citation Reports
Essential Science Indicators
EndNote

Search
Help
Researcher: Mosekiemang, Melitah

Dashboard > Research Permits > Edit QUALITY TECHNICAL VOCATIONAL EDUC...

Dashboard
Research Output
Award Management
Project Ideas
Research Permits
Projects
Funding Opportunities
Tasks
IP Management
Person Data
Notifications
Statistics

### QUALITY TECHNICAL VOCATIONAL EDUCATION IN BOTSWANA: A CRUCIAL REQUIREMENT FOR CURRICULUM DEVELOPMENT.; Mosekiemang, Melitah - UNICAF University

Not internally visible
Approved
Admin Info

Key Information \*
Research Plans \*
Approvals \*
Documents \*

#### Permit Issuing Organisation

Ministry of Education and Skill... (Botswana)

#### Secondary Organisation

#### Research Officer and Evaluation Committee at Permit Issuing Organisation \*

Name	Organisation	Organisation Address	Phone	Email	
Madiba, Tlhatlogo	Ministry of Education and Skills Development	Government Enclave, Block 6 Building, Gaborone, Gaborone,	371 5229	ebscosera@gmail.com	

#### Comments and Meeting Minutes from Evaluation Committee \*

Met all the requirements

24/1024

#### Research Officer and Evaluation Committee at Secondary Organisation

#### Comments and Meeting Minutes from Referral Committee

0/1024

#### Permit Approver \*

Name	Organisation	Organisation Address	Phone	Email	
Sibiza, Buhle	Ministry of Education and Skills Development	Government Enclave, Block 6 Building, Gaborone, Gaborone,		bsiziba@gov.bw	

#### Approval Information

#### Permit Approver Comments

application approved

Cancel
Save
Save & close

#### Expiry Date

08/04/2025

# Appendix: E Francistown College of Technical and Vocational Education.

Tel: (+267) 2412607  
Fax: (+267) 2441065



Gerald Estates, Plot 25916  
Private Bag F104  
Francistown  
Botswana

## MINISTRY OF EDUCATION AND SKILLS DEVELOPMENT FRANCISTOWN COLLEGE OF TECHNICAL AND VOCATIONAL

**REF:**

28<sup>th</sup> July 2023

Melilah Mosekiemang

Request for permission to carry out a study – yourself

The above captioned subject matter refers.

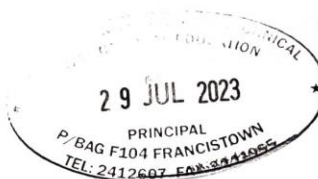
This letter is in response to your letter dated 19 June 2023 in which you sort permission to carry out a study titled **QUALITY TECHNICAL VOCATIONAL EDUCATION IN BOTSWANA: A CRUCIAL REQUIREMENT FOR CURRICULUM DEVELOPMENT.**

Permission is hereby granted to you to carry out research in the Hospitality & Tourism and Business Studies departments.

Thank you

V.R. Uyapo

**FOR/PRINCIPAL**



Achieving Prosperity for All

**OUR VISION**  
"A Knowledge based Society Enabling Prosperity for all"  
Collaboration Co- production Consuming  
TOLL FREE: 0800-600-185

TOLL FREE: 0800-600-185





## Appendix F: Gaborone Technical College.

Telephone: (+267) 3636200  
Fax: (+267) 3903382



Kgale View  
Private Bag 00358,  
Gaborone  
Botswana

MINISTRY OF EDUCATION AND SKILLS DEVELOPMENT

GABORONE TECHNICAL COLLEGE

REF: GTCA 1 / 32 I (45)

20 August 2023

Ms Melitah Mosekiemang  
P O Box 80970  
Gaborone  
Botswana

Dear Madam

**RESEARCH PERMIT – YOURSELF**

The above subject matter refers.

Reference is made to your letter dated 19<sup>th</sup> June 2023 in which you have requested to be given permission to conduct research on **"Quality Technical Vocational Education in Botswana: A crucial requirement for Curriculum Development"**.

Kindly note that the College reviewed your request and have also noted that your proposal has been reviewed and approved by the Ministry. Permission is therefore granted to conduct the above mentioned research. This approval is valid for the period as specified in your request.

It is of paramount importance to liaise with Deputy Principal Academics and the Head of Department – Hospitality and Tourism from which you are going to collect data under their assistance and guidance. We hope that you will conduct your research as stated in your proposal and you will adhere to research ethics. Failure to comply with the above stated, will result in immediate termination of the research permit. Any changes in the proposed research should be communicated to the Permanent Secretary, Ministry of Education and Skills Development.

Thank you.

Yours Faithfully

Moitshephi Oitaotse  
**For/PRINCIPAL**

## Appendix: G Mahalapye Brigade.



REPUBLIC OF BOTSWANA  
 MINISTRY OF EDUCATION AND SKILLS DEVELOPMENT  
 DEPARTMENT OF SKILLS DEVELOPMENT  
 MAHALAPYE BRIGADES CENTER  
 Tel: 4710256/219, Fax: 4720018, Private Bag 16, Mahalapye

MAHB/4/8/1 III (19)

6<sup>th</sup> August 2023

Melitah Mosekiemang  
 P.O. Box 80970  
 Gaborone

Dear Madam

### RE: GATE-KEEPER LETTER

This letter is in response to the letter dated 19 June 2023 in which you sort permission to carry out a study titled **QUALITY TECHNICAL VOCATIONAL EDUCATION IN BOTSWANA: A CRUCIAL REQUIREMENT FOR CURRICULUM DEVELOPMENT.**

Permission is granted for you to carry out the research in our different institutional departments relevant to your study.

Thank You.

Victor Sibanda  
 For/Deputy Principal





## Appendix H: Palapye Technical College.

Telephone: (+267) 4920576  
Fax: (+267) 4923453  
Email:



REPUBLIC OF BOTSWANA

Private Bag 0046  
Palapye  
Botswana

MINISTRY OF EDUCATION AND SKILLS DEVELOPMENT

PALAPYE TECHNICAL COLLEGE

23 August 2023

Melilah Mosekiemang

**RE: PERMISSION TO CARRY OUT RESEARCH**

This letter is in response to the letter dated 19 June 2023 in which you sort permission to carry out a study titled **QUALITY TECHNICAL VOCATIONAL EDUCATION IN BOTSWANA: A CRUCIAL REQUIREMENT FOR CURRICULUM DEVELOPMENT** for your Doctor of Education with UNIICAF Zambia.

I am grateful to grant you permission to carry out the research in the Business studies department.

Thank You

Lydia Kefhilwe

Head of Department Academics



# Appendix I: Selibe Phikwe Technical College.

Tel: (+267) 2610045  
 Fax: (+267) 2610733  
 (+267) 2610776



REPUBLIC OF BOTSWANA

New Station Plot No: 8779  
 Private Bag 0049  
 Selebi Phikwe  
 Botswana

MINISTRY OF EDUCATION & SKILLS DEVELOPMENT

SELEBI PHIKWE TECHNICAL COLLEGE

04 August 2023

Melilah Mosekiemang  
 P O Box 80970  
 Gaborone

This letter is in response to the letter dated 19 June 2023 in which you sort permission to carry out a study titled **QUALITY TECHNICAL VOCATIONAL EDUCATION IN BOTSWANA: A CRUCIAL REQUIREMENT FOR CURRICULUM DEVELOPMENT**. Permission is granted for you to carry out the research in the department of Business studies department.

Thank You.

Yours faithfully

Laone Lewanika (Ms)  
 HOD BUSINESS

## Appendix J: Marapong Brigade.

TELEPHONE: 2981411/16  
FAX: 2981426  
CELL: 7227 3163



MINISTRY OF EDUCATION & SCHOOLS  
DEVELOPMENT  
MARAPONG  
BRIGADE  
PRIVATE BAG 42  
MARAPONG

25 July 2023

ATT: Ms Melitah Moseklemang

DEAR MADAM

This communicate serves to respond to your letter dated 19 July 2023 wherein you sort permission to carry out a study titled **QUALITY TECHNICAL AND VOCATIONAL EDUCATION IN BOTSWANA: A CRUCIAL REQUIREMENT FOR CURRICULUM DEVELOPMENT.**

I am pleased to inform you that your request has been successful and we wish you success in this endeavor.

Yours faithfully

Tumelo Lawrence Lekau (senior Lecturer II)  
For/ Deputy Principal



## Appendix K: Department of Teacher Training & Technical Education.



## Appendix L: Curriculum Developers.

Telephone : (+267) 3668000  
Fax: (+267) 3180942/43



Republic of Botswana

Plot 54367, Vasha House  
CBD, Gaborone  
Private Bag 00188, Gaborone

MINISTRY OF EDUCATION AND SKILLS DEVELOPMENT  
Department of Teacher Training and Technical Education

Dear Mrs. Moseklemang

**PERMISSION TO CARRY OUT RESEARCH YOURSELF**

Reference is made to your letter dated 10 June 2023 in which you requested to carry out a study titled: **QUALITY TECHNICAL VOCATIONAL EDUCATION IN BOTSWANA: A CRUCIAL REQUIREMENT FOR CURRICULUM DEVELOPMENT** in the Colleges. I am grateful to grant you permission to do so.

Regards,

Mr. Paul Phetogo

For / Director





### **Appendix M: Interview Questionnaire for Curriculum Developers.**

#### **INTERVIEW QUESTIONNAIRE: TECHNICAL VOCATIONAL EDUCATION CURRICULUM DEVELOPERS**

My name is Melitah Mosekiemang a Doctor of Education student at UNICAF University in Zambia. I am currently collecting data for my dissertation titled Quality Technical Vocational Education in Botswana: A crucial requirement for curriculum development. I would like to get your views concerning curriculum development process in your area of specialty. Your viewpoint will provide great insights to the development of a quality curriculum of the Botswana Technical Vocational Education. The information given by you will be used only for research purposes and will be treated with utmost confidentiality.

The purpose of the study is to investigate the quality of the Botswana technical vocational education curriculum development. A closer investigation would be to find out whether the curriculum is aligned in all the sectors of technical vocational education and training at all the levels, which will allow for continuity from one level to another. Furthermore, to find out whether internal and external stakeholders are involved during curriculum development in order to inform the curriculum. The significance of this research is that, there will be an alignment and harmonization of the curriculum among the TVET institutions. The alignment will allow for an easy transition from one level to the other. The inclusion of the implementers will allow for quality of instruction and resources the curriculum developers have been chosen because they are engaged in curriculum development, lecturers as implementers of the curriculum developed. This interview will take approximately forty-five (45) minutes

The above named student is committed to ensuring participant's voluntarily participation in the research project and guaranteeing there are no potential risks and/or harms to the participants. Participants have the right to withdraw at any stage (prior or post the completion) of the research without any consequences and without providing any explanation.

In these cases, data collected will be deleted. All data and information collected will be coded and will not be accessible to anyone outside this research. Data described and included in dissemination activities will only refer to coded information ensuring beyond the bounds of possibility participant identification.

**PLEASE TICK BELOW**

Agree ☐ Disagree ☐

**DEMOGRAPHIC DATA**

**Gender**

Male ☐ Female ☐ Prefer not to mention ☐  
Other ☐

**Age category**

35 – 40 ☐ 40-45 ☐ 45-50 and above ☐  
50 and above ☐

**Educational level**

Diploma ☐ Degree ☐ Master's Degree & above ☐

**No of years in Curriculum Development**

0-5 ☐ 5-10 ☐ 10- 15 ☐ 15- 20 ☐ 20 & above ☐

**A. Curriculum Framework**

i). which curriculum frame work informs the curriculum development process

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ii). what should a curriculum framework entail?

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iii). which policies informed the curriculum frame work in Botswana Technical Vocational Education and Training (TVET)?

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iii). what is the model is used for the TVET curriculum framework?

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Iv). Can you share the reasons why this model has been chosen?

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V). How do you think the model might develop in the future?

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## **B.) Quality Technical Vocation Education & Training curriculum**

i). According to your own understanding how would you describe a quality technical Vocational education curriculum?



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ii) What do you think a quality competitive curriculum should focus on?

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iv).How do you ensure that the curriculum developed is globally competitive?

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v) How does the current curriculum promote creativity and innovation?

### **C. Curriculum alignment**

i). According to your own understanding how would you describe an aligned curriculum?

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ii). what can you say about the curriculum alignment of certificate and Diploma for TVET?

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iii) How would you ensure that the Certificate and Diploma curriculum is aligned?

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iv). what are the benefits of aligning the curriculum?

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v.) what might help or hinder the development of an aligned curriculum?

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vi.) Who are the different people to assist so as to develop an aligned curriculum and how are they involved?

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### **Stakeholder involvement**

How do you engage stakeholders?

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What are the benefits of engaging the stakeholders?

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**Thank you for you cooperation**

Appendix N: **Focus group discussion Interview.**



**FOCUS GROUP INTERVIEW: TECHNICAL VOCATIONAL EDUCATION CURRICULUM DEVELOPERS;**

My name is Melitah Mosekiemang a Doctor of Education student at UNICAF University in Zambia. I am currently collecting data for my dissertation titled Quality Technical Vocational Education in Botswana: A crucial requirement for curriculum development. I would like to get your views concerning curriculum development process in your area of specialty. Your viewpoint will provide great insights to the development of a quality curriculum of the Botswana Technical Vocational Education. The information given by you will be used only for research purposes and will be treated with utmost confidentiality.

The purpose of the study is to investigate the quality of the Botswana technical vocational education curriculum development. A closer investigation would be to find out whether the curriculum is aligned in all the sectors of technical vocational education and training at all the levels, which will allow for continuity from one level to another. Furthermore, to find out whether internal and external stakeholders are involved during curriculum development in order to inform the curriculum. The significance of this research is that, there will be an alignment and harmonization of the curriculum among the TVET institutions. The alignment will allow for an easy transition from one level to the other. The inclusion of the implementers will allow for quality of instruction and resources the curriculum developers have been chosen because they are engaged in curriculum development, lecturers as implementers of the curriculum developed. This interview will take approximately forty-five (45) minutes

The above named student is committed to ensuring participant's voluntarily participation in the research project and guaranteeing there are no potential risks and/or harms to the participants. Participants have the right to withdraw at any stage (prior or post the completion) of the research without any consequences and without providing any explanation.

**PLEASE TICK BELOW**

Agree ☐ Disagree ☐

**DEMOGRAPHIC DATA**

**Gender** ☐

Male ☐

Female ☐

Prefer not to mention ☐

Other

**Age category**

35 – 40

40-45

45-50 and above

50 and above

**Educational level**

Diploma

Degree

Master's Degree & above

**No of years in Curriculum Development**

0-5

5-10

10- 15

15- 20

20 & above

**A. Curriculum Framework**

i). what are the steps that you follow when developing the curriculum?

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ii). which policies informed the curriculum development in Botswana Technical Vocational Education and Training (TVET)?

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**B.) Quality Technical Vocation Education & Training curriculum**

i). According to your own understanding how would you describe a quality technical Vocational education curriculum?

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ii) What do you think a quality competitive curriculum should focus on?

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iv).How do you ensure that the curriculum developed is globally competitive?

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v) How does the current curriculum promote creativity and innovation?

### **C. Curriculum alignment**

I. How would you ensure that the Certificate and Diploma curriculum is aligned?

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ii what might help or hinder the development of an aligned curriculum?

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iii. Who are the different people to assist so as to develop an aligned curriculum and how are they involved?

### **Stakeholder involvement**

i. How do you engage stakeholders?

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ii. What are the benefits of engaging the stakeholders (lecturers and industry)?

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**Thank you for your cooperation**

**Appendix O: Questionnaire for Lecturers.**



My name is Melitah Mosekiemang a Doctor of Education student at UNICAF University in Zambia. I am currently collecting data for my dissertation titled Quality Technical Vocational Education in Botswana: A crucial requirement for curriculum development. I would like to get your views concerning curriculum development process in your area of specialty. Your viewpoint will provide great insights to the development of a quality curriculum of the Botswana Technical Vocational Education. The information given by you will be used only for research purposes and will be treated with utmost confidentiality

The purpose of the study is to investigate the quality of the Botswana technical vocational education curriculum development. A closer investigation would be to find out whether the curriculum is aligned in all the sectors of technical vocational education and training at all the levels, which will allow for continuity from one level to another.

Furthermore, to find out whether internal and external stakeholders are involved during curriculum development in order to inform the curriculum. The significance of this research is that, there will be an alignment and harmonization of the curriculum among the TVET institutions. The alignment will allow for an easy transition from one level to the other. The inclusion of the implementers will allow for quality of instruction and resources the curriculum developers have been chosen because they are engaged in curriculum development, lecturers as implementers of the curriculum developed.

The above named student is committed to ensuring participant's voluntarily participation in the research project and guaranteeing there are no potential risks and/or harms to the participants. Participants have the right to withdraw at any stage (prior or post the completion) of the research without any consequences and without providing any explanation. In these cases, data collected will be deleted. All data and information collected will be coded and will not be accessible to anyone outside this research. Data described and included in dissemination activities will only refer to coded information ensuring beyond the bounds of possibility participant identification.

**PLEASE TICK BELOW**

Agree ☐ Disagree ☐

**DEMOGRAPHIC DATA**

**Gender**

Male ☐ Female ☐ Prefer not to mention ☐  
Other ☐

**Age category**

35 – 40 ☐ 40-45 ☐ 45-50 and above ☐  
50 and above ☐

**Educational level** ☐



Diploma

Degree

ster's Degree & above**No of years in Curriculum Development**

0-5

5-10

10- 15

20

above

**BACKGROUND INFORMATION**

1. Which programme do you offer?

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2. What level does your institution offer?

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**A. Curriculum Framework**

i). what do you understand by a curriculum frame work?

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iii). what should a curriculum framework entail?

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ii). which policies informed the curriculum frame work in Botswana Technical Vocational Education and Training (TVET)?

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iii). which model is used in the TVET curriculum framework?

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## **B.) Quality Technical Vocation Education & Training curriculum**

i). According to your own understanding how would you describe a quality technical Vocational education curriculum?

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ii). during curriculum development which are the factors that should be considered in order to produce a quality curriculum?

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ii) What do you think a quality competitive curriculum should focus on?

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iv).How do you ensure that the curriculum developed is globally competitive?

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v) How does the current curriculum promote creativity and innovation?

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## **C. Curriculum alignment**

i). According to your own understanding how would you describe an aligned curriculum?

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ii). what can you say about the curriculum alignment of certificate and Diploma for TVET?

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iii) How would you ensure that the Certificate and Diploma curriculum is aligned?

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iv). what are the benefits of aligning the curriculum?

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v.) what might help or hinder the development of an aligned curriculum?

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vi.) Who are the different people to assist so as to develop an aligned curriculum and how are they involved?

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#### **D. Stakeholder consultation (Internal & external)**

The following questionnaire shows the implications of stakeholder involvement in curriculum development please tick the appropriate box

**Key:**

1. Strongly agree
2. Agree
3. Neutral
4. Disagree
5. Strongly disagree

<b>Stakeholder involvement implications</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
1 .Informs the teaching and learning					
2. As part of the curriculum development process lecturers will be motivated during teaching and learning					
3. Encourages constructive criticisms					
4. Encourages stakeholders to be able to come up with recommendations during curriculum development					
5. Has positive impact in curriculum planning , implementation and evaluation					
6. Reduces skills mismatch					
7. Offers information that is relevant to their needs					
8. Are equipped with skills and information required in the industry					
9. Are experts in the designing of the teaching materials.					
10. Ensure correct implementation of the curriculum					

**E. Level of stakeholder involvement**

i. At what stage of the curriculum development process are you engaged?

- a. analysis
- b. design
- c. development
- d. implementation
- e. evaluation
- f. none of the above
- h. all of the above

ii) What are the effects of being included at that level (both negative and positive)

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iii) What level of the curriculum development process would be relevant for you and why?

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**Thank you for your cooperation**

**Appendix P: Interview Guide.****Programme name: Doctor of Education****Interviewer:** Melitah Mosekiemang**Interviewee:** \_\_\_\_\_**Date:** \_\_\_\_\_**Introduction**

My name is Melitah Mosekiemang a Doctor of Education student at UNICAF University in Zambia. I am currently collecting data for my dissertation titled Quality Technical Vocational Education in Botswana: A crucial requirement for curriculum development. I would like to get your views concerning curriculum development process in your area of specialty. Your viewpoint will provide great insights to the development of a quality curriculum of the Botswana Technical Vocational Education. The information given by you will be used only for research purposes and will be treated with utmost confidentiality.

- The purpose of the interview is to get your viewpoint on curriculum development process in your subject area.
- You are not required to reveal your name
- The interview will take approximately 30 minutes of your time
- The information will be used for the benefit of curriculum development in Botswana technical vocational education.
- Where you do not understand you are free to ask for clarity.

**PLEASE TICK BELOW**

Agree

☐

Disagree

☐

**DEMOGRAPHIC DATA****Gender**Male Female Other Prefer not to mention **Age category**35 – 40 40-45 50 and above **Educational level**Diploma Degree Master's Degree & above **No of years in teaching**0-5 5-10 10- 15 20 above **BACKGROUND INFORMATION**

1. Which programme do you offer?

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2. What level does your institution offer?

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**A. Curriculum Framework**

I). what do you understand by a curriculum frame work?

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iii). what should a curriculum framework entail?

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 ii). which policies informed the curriculum frame work in Botswana Technical Vocational Education and Training (TVET)?
 

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iii). which model is used in the TVET curriculum framework?

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**B.) Quality Technical Vocation Education & Training curriculum**

I). According to your own understanding how would you describe a quality technical vocational education curriculum?

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ii). during curriculum development which are the factors that should be considered in order to produce a quality curriculum?

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ii) What do you think a quality competitive curriculum should focus on?

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iv).How do you ensure that the curriculum developed is globally competitive?

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v) How does the current curriculum promote creativity and innovation?

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### **C. Curriculum alignment**

i). According to your own understanding how would you describe an aligned curriculum?

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ii). what can you say about the curriculum alignment of certificate and Diploma for TVET?

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iii) How would you ensure that the Certificate and Diploma curriculum is aligned?

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iv). what are the benefits of aligning the curriculum?

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v.) what might help or hinder the development of an aligned curriculum?

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vi.) Who are the different people to assist so as to develop an aligned curriculum and how are they involved?

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## Appendix Q: Cronbach Alpha Test results.

Anova: Two-Factor Without Replication

<i>SUMMARY</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Row 1	10	10	1	0
Row 2	10	13	1.3	0.233333
Row 3	10	16	1.6	0.266667
Row 4	10	20	2	0.666667
Row 5	10	24	2.4	0.266667
Row 6	10	27	2.7	0.233333
Row 7	10	26	2.6	0.266667
Row 8	10	30	3	0
Row 9	10	24	2.4	0.266667
Row 10	10	30	3	0
Column 1	10	23	2.3	0.455556
Column 2	10	22	2.2	0.844444
Column 3	10	21	2.1	0.766667
Column 4	10	23	2.3	0.455556
Column 5	10	22	2.2	0.844444
Column 6	10	21	2.1	0.766667
Column 7	10	23	2.3	0.455556
Column 8	10	22	2.2	0.844444
Column 9	10	21	2.1	0.766667
Column 10	10	22	2.2	0.844444

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Rows	44.2	9	4.911111	20.71875	1.26E-17	1.997609
Columns	0.6	9	0.066667	0.28125	0.978108	1.997609
Error	19.2	81	0.237037			
Total	64	99				