EXPLORING FACTORS INFLUENCING QUALITY TRAINING PROVISION IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING SCHOOLS IN RWAMAGANA DISTRICT, RWANDA

By

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DECLARATION

This work is declared to be my original research work and it has not been presented to any other institution.

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DEDICATION

This dissertation is dedicated to my beloved wife and children

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ABSTRACT

The Rwanda TVET policy aims to develop a competent labor force to bridge the skills gap in the market. Despite governmental efforts, significant challenges persist in cultivating a technically skilled workforce. This study investigated factors influencing quality training provision in TVET schools of Rwamagana district, Rwanda. Using multistage sampling techniques, data were collected from 157 trainees, 135 trainers, and 10 school managers. Descriptive analysis and multiple linear regression model were used to analyze the data. Key findings indicated that physical facilities significantly impact training quality, with trainees' mean score (M=3.0, SD=1.09) and trainers' mean score (M=2.95, SD=1.02). Continuous professional development (CPD) for trainers also showed a significant positive effect, with a mean score of (M=3.19, SD=1.19). Quality assurance factors furthermore influence in TVET quality training provision, with trainers' mean score (M=2.80, SD=0.612). The combined effect of physical facilities, CPD, and quality assurance contributed 77.5% to training quality improvement in TVET schools. Recommendations include regular updates and diversification of workshop materials to meet industry standards, establishing structured and mandatory CPD schedules, and implementing robust assessment frameworks by quality assurance entities to ensure continuous improvement in TVET quality training provision.

Keywords*: Continuous Professional Development (CPD), Physical Facilities, Quality Assurance, Quality Training Provision, TVET Schools.*

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS &ABBREVIATIONS

CBT: Competency-Based Training

CPD: Continuous Professional Development

EAC : East African Community

ELT: Experiential Learning Techniques

EQA: External Quality Assurance

IQA: Internal Quality Assurance

MINEDUC: Ministry of Education

OECD: Organization for Economic Cooperation Development

RTB: Rwanda TVET Board

RTQF: Rwanda TVET Qualification Framework (RTQF)

SM: School Manager

SPSS: Statistical Package for Social Sciences

SSA: Sub-Sahara Africa

TVET: Technical and Vocational Education and Training

UNESCO: United Nations Educational, Scientific and Cultural Organization.

VET: Vocational Education Training

WDA: Workforce Development Authority

CHAPTER ONE: GENERAL INTRODUCTION

1.1.Background of the study

Globally, education is necessary for both economic and social development of the countries all over the world. Well-trained, motivated and adaptable skilled workers is the key foundation for a sustainable socio-economic transformation strategy. Technical and Vocational Education and Training (TVET) is all about with the process of acquiring skills, knowledge and competence for the world of work (Mutebi & Kiplagat, 2023). TVET is an education, training and learning process leading to the acquisition of knowledge and skills which are useful for being employed or being self-employed (Hailu, 2012). The aim of TVET is to equip people with abilities that widen their opportunities in life. TVET can play a crucial role in the way of preparing young generation for the world of work and provide them with skills needed to find appropriate employment (Shefiu & Ayika, 2019). A manpower who isn't well equipped with valued skills locally and globally faces with serious limitation in job opportunities and income generation as well. TVET is viewed as an important driven tool for skilling young generation both in and out of school. Policies to uphold Technical and Vocational Education Training are mainly considered as a great investment in human capital as a means for assisting economic progress (Malambo, 2023). The main purpose of TVET according to UNESCO(1989) is linked to the means for supporting sustainable development. Technical and Vocational Education Training is considered as tool for assisting the development of a variety abilities that are perceived as opportunities to improve functioning that individuals, their communities and society at great, have motive to value the TVET sector (Mboya, 2023).

Technical and Vocational Education and Training (TVET) has an essential role to play in the agenda of the international education, as it is stipulated in the Sustainable Development Goals (SDGs) under the goal number four (Ogwo, 2018). Three among the goals of SDGs emphasized that countries should value the role of ensuring inclusiveness, equitable, and quality TVET for all. Even other goals advocated that skills and education are basis in realizing all of the Sustainable Development Goals (Omole & Omole, 2020). Even though the role of Technical and Vocational Education and Training is well known in international education-related policies, the image of TVET is somehow relatively challenging when compared with other educational corridors like higher and academic education. In some countries which have the high quality TVET system, the

actual enrollment in TVET is decreasing and most students prefer to pursue the general academic education rather than joining Technical and Vocational Education and Training. The low image of TVET is a worldwide issue. There are various reasons affecting the image of TVET such as poor quality, fragile linkages with stakeholders mainly the industries, social stereotype, cultural barriers and shortage of qualified trainers (Sako, 2020). Low image of TVET can lead to the low number of government industries and enterprise aids. Nevertheless, there is frequently a discrepancy concerning the worth and benefits of TVET and decision-making about it.

Many countries are experiencing a growing scarcity of qualified workers to fulfill the demands of skilled workers to meet the necessities of enterprises and to assist communities. For instance in Europe, the United Kingdom is facing serious decline levels of participation in options for the advanced technical skills needed for its profitable activities (Paing, 2020). German enterprises are facing problems securing suitable numbers of quality aspirants for traineeships. In the nations of the Organization for Economic Cooperation Development (OECD), TVET plays a vital role in preparing people for productive livehoods. Even if each OECD country has a distinct approach toward TVET, many of these approaches benefit from effective communication and stable bond with the private sector and the education system, investment from private sector, a strong collaboration between curriculum development to be learnt at school and the workplaces, high proportion of school leavers to get well paid technical jobs, trade associations, and other favorable factors that bring diverse stakeholders together to share the costs and benefits of training (Ekhalia *et al.*, 2021).

In Malaysia, the competencies of TVET trainers are given a great value. TVET trainers are required to have expertise, qualifications and standardized skills in before undertaking teaching profession (Gerds & Zhao, 2006). This is done to ensure that trainers of TVET meet the standards required in order to provide quality teaching (Komaro *et al.*, 2022). This statement is similar to Mahazani (2011) argues that the number of literary studies on TVET's competencies is still low. As stated by Yaakub *et al.* (2014), the process of making reform and reconstructing TVET system has shown that different changes have been done and new paradigms developed. In the way of achieving these goals, there are important aspects that require quick serious action and long-term

preparation. One of these important components is hiring from outside the market of a well-trained trainer as a teaching staff at Vocational college (Abdullah *et al.*, 2019).

In Asia,the study conducted by Memon *et al.* (2010) highlighted that in Pakistan the quality of education in TVET area has declined due to poor staff, bad condition of the workshops which have outdated learning materials and equipment and curriculum competences mismatch with the standards presently in the job. In India, the quality of technical education has declined because of great number of students, commoditization and demonstration which is not reliable (Ogony, 2017). Furthermore, there are still discrepancies in terms of areas, funds and outcomes. The other serious concerns include shortage of teaching staff, high student-teacher ratio and poor quality content (Konwar,2012).

In Africa ,Nigerian TVET institutions faced a great number of problems that lowered the quality (Ogony, 2017; Rufai, 2014). This includes inappropriate funding, shortage of academic staff, poor infrastructure, poor utilization of Information, Communication and Technology (ICT), endless staff union lamentations and subsequent closures of the institutions, lack of professional development of the staff and capacity building, limited incentives that cause brain drain of qualified academic staff, poor leadership at the national level and even at the institutions top management level. In Ghana, technical education faces a number of problems in ensuring success and these include high requirements for entry into the TVET education because of population explosion and acute poverty among its citizens (Baryeh, 2009). Mutebi and Ferej (2023) indicated that TVET institutions did not work to match the expected standards because of inappropriate human, financial and physical resources. In the same case, they did not have strong strategies to ensure capacity building for their academic staff and practices for their trainees. This led to practical competences and skill imbalance since the academic staff experience the lack of actual skills and competences needed at the labor market and thus, becoming an obstacle to provide the same knowledge to the trainees to be used at the labor market.

TVET institutions in Ethiopia confronted with shortage of internet and that negatively impacted TVET training since it was a barrier to ICT contents' delivery. The institutional infrastructure was of poor standards compared to the expectations hence affecting training provision (Ogony, 2017).

The provision of budget to supply training equipment and resources was also not enough to withstand quality of training. In Kenya, Kennedy *et al.* (2018) highlighted that TVET schools confronted with different challenges that have affected its growth. These include implementation of official curriculum which does not encompass the current needs of the labor market. In curriculum design, they might not involve the key stakeholders; such as industries, curriculum implementers from the grass roots levels thus, leading to the unexpected mismatch between the provided training and labor markets needs.

According to the report by Master Card Foundation (2018), Sub-Saharan Africa (SSA) is the region which has more young and its growing rate is very high. It is anticipated that in 2030, the youth will comprise 37% of the working people in Sub-Saharan Africa (Chikoko & Mthembu, 2020). Nevertheless, the African continent is still facing the unexpected increasing rate of unemployment among the youth more than adult ones. Therefore, Africa must do all possible in order to improve the quality of education and put more efforts in TVET since it will enable the youth to acquire skills and knowledge needed in order to be more productive. The African Union Outlook on Education Report (2014) highlighted that all challenges faced by TVET in developing nations must be addressed to contribute to sustainable development. The report emphasizes that TVET must be promoted in all corners in Africa because most of the population is young age.

In this line, all members States of East African Community (EAC) put more efforts in creating all factors leading to the development and growth of TVET. From this perspective, Rwanda emphasizes the prominence of TVET in its development (MINEDUC, 2015). Furthermore, the TVET policy by the Ministry of Education (2015) highlights that Rwanda has an ambition of developing TVET system that will be able to realize graduates who are equipped with skills needed at the market labor. The Ministry of Education (2018), in its Education Sector Strategic Plan (2018/2019-2023-2024), reiterates that the system of Education in Rwanda must be able to produce graduates with enough skills in order to become an industrial upper middle-income nation by 2035. Though, graduates from TVET are still lacking adequate skills to fit the labor market. The Rwanda Development Board (2019) mentioned that TVET and other higher learning institutions are not adequately producing graduates who are equipment with employable skills.

According to Rukundo and Sikubwabo (2021), Rwanda is confronted with a significant shortage of trained workforce, particularly in technical professions. Despite the government's commitment, as outlined in the Education sector policy and National Science, Technology, and Innovation policy, to enhance TVET, there remains a pressing need for skilled manpower and capable technicians. TVET institutions often fail to align with the demands of the workplace. This is evident in sectors like construction, where high demand for skilled workers exists, yet TVET graduates struggle to secure employment due to their lack of practical, hands-on skills. The absence of clear, well-developed policies to guide the development, provision, and management of TVET exacerbates the issue. Additionally, the limited number of qualified trainers and instructors hinders efforts to improve quality training, with many educators possessing inadequate formal qualifications and lacking specialized training for teaching roles. Some of them enter teaching profession immediately after leaving schools and they don't have practical technical experiences and practical competences. TVET institutions experience poor equipment and teaching materials. They are not stimulating students to have an idea regarding future occupation.

1.2. Statement of the problem

Technical and Vocational Education and Training schools aimed at providing knowledge and skills to the population to be more successful to secure and retain their jobs. Training from TVET helps students to be equipped with knowledge, competences and practical skills (Gyimah, 2020). Each Technical and Vocational Education and Training school must have adequate requirements in form of physical facilities, system of providing continuous professional development to trainers, strong quality assurance system in order to achieve quality training provision (Mohammad & Ismail, 2019). These schools play a crucial role in making progress in economic development, industrial growth and competitiveness. Contrary to this, Technical and Vocational Education and Training schools in Rwamagana district are on track to improve good quality training, still in search of teaching conditions that can positively influence training provision. As of the latest reports of Rwanda TVET Board, 2024, Rwanda has approximately 93,000 students enrolled in various TVET institutions across the country; and the Government aims to have 60% of the graduates from nine years of basic education transition to TVET programs by 2024; and also Rwanda counts over 400 TVET institutions, including technical secondary schools, vocational training centers, and polytechnics, distributed across the country to enhance accessibility (Primature, 2024). These

figures illustrate the significant emphasis Rwanda places on TVET to drive economic growth and reduce unemployment by equipping students with practical and marketable skills.

According to Groupe Scolaire Cyimbazi TVET wing report (2021), some TVET schools continue to use narrowed and non-standardized workshops with old and non updated machinery in their trades of tailoring, carpentry and masonry posing concerns wthether graduates will be able to compete at the modern labor market. Technical and Vocational Education training schools in Rwamagana district still confront with the centralized Continous Professional Development for trainers (DEO report, 2022), since the main CPD organization is still the monopoly of Rwanda TVET Board (RTB) officials and there is need that TVET local educational officials play a role in and take a lead of trainers'CDP activities at schools and district levels. When Local educational officials of TVET are part of and fully involved in quality assurance activity; TVET schools will provide quality training and this will help trainees acquiring adequate knowledge, competences and practical skills (Paryono,2020). However, contrary to this, the activity of quality assurance including; TVET needs assessment,trainers'coaching, regular monitoring and evaluation; almost remain the monopoly of RTB officials and there is need that local TVET educational officials be equipped with such skills and fully involved in the process of quality assurance. The foregoing challenges provided an opportunity for empirical research whose purpose is to to explore the factors that influence quality training provision in TVET schools of Rwamagana district.

1.3. Objectives of the study

1.3.1. General objective

The main objective of the study was to explore factors influencing quality training provision in Technical and Vocational Education and Training schools in Rwamagana district.

1.3.2. Specific objectives of the study

The following specific objectives guided the study:

- To determine the extent to which physical facilities influence quality training provision in TVET schools of Rwamagana district.
- To investigate the extent to which Continuous Professional Development for trainers influence quality training provision in TVET schools of Rwamagana district

- To assess the extent to which quality assurance influences quality training provision in TVET schools of Rwamagana district.

1.4. Research questions

The following research questions guided the study:

- At what extent physical facilities influence quality training provision in TVET schools of Rwamagana district?
- At what extent Continuous Professional Development influence quality training provision in TVET schools of Rwamagana district?
- At what extent quality assurance influence quality training provision in TVET schools of Rwamagana district?

1.5. Significance of the study

The findings of the study indicated the potential areas for the factors influencing quality training provision in Technical and Vocational Education and Training schools. The undertaken study helped to fill a potential gap in the literature, providing valuable insights into an area that have not been extensively explored. The study offered practical benefits for educational institutions, TVET policymakers, and stakeholders, while also making valuable contributions to the existing knowledge base in the field of technical and vocational education and training. As personal interest; the research filled a gap in existing literature, offering new insights into an underexplored area and the findings are valuable for individuals interested in improving educational practices within TVET institutions.

As academic interest; the study contributed to the academic field by expanding the knowledge base on factors affecting training quality in TVET schools; it provided practical implications and recommendations for educational institutions and policymakers to enhance the effectiveness of TVET programs; furthermore, the research also potentially served as a foundation for future studies and academic research in technical and vocational education.

As global interest; the research presents practical benefits globally, as policymakers and other stakeholders worldwide can use the study's findings to improve the quality of technical and

vocational training. Hence, the thesis contributes to personal, academic, and global interests by addressing gaps in knowledge, offering practical recommendations, and enhancing the quality of technical and vocational education and training on a broader scale.

1.6. Scope and limitation of the study

1.6.1. The scope of the study

The study focused on the factors influencing quality provision in TVET schools of Rwamagana district. The study was limited to 10 TVET schools of Rwamagana district and the ten schools were selected to be area of the study, these were representative schools and the study covered a period of six months.

1.6.2 Limitation of the study

Like many other surveys, the study faced limitations based on the data collection methods adopted and willingness of the respondents to give precise and accurate resposes, limited information, time constraint as it was not possible to investigate factors influencing quality training provision in TVET in the whole country due to time and financial constraints.

1.7. Definition of terms

Technical and Vocational Education and Training (**TVET**): It refers to education and training that is designed to equip individuals with the knowledge, skills, and competencies needed for technical specific jobs or professions and TVET programs focus on practical, and hands-on skills acquisition.

Continuous Professional Development (**CPD**): It refers to the ongoing process of acquiring, updating, and enhancing the knowledge, skills, and competencies that professionals need to perform effectively in their respective fields. It is not limited a fixed career but encompasses a variety of activities, among others; formal and informal education, TVET programs and aims at keeping professionals abreast of advancements in their fields and ensuring their continued professional growth.

Quality assurance: Quality assurance in TVET contributes to the overall effectiveness and relevance of vocational education, promoting the employability and success of graduates in their

chosen fields. Quality assurance in Technical and Vocational Education and Training (TVET) involves systematic processes and measures to ensure that the education and training provided meet established standards, are relevant to industry needs, and result in competent and skilled individuals ready for the workforce.

Physical facilities: In the context of Technical and Vocational Education and Training (TVET), physical facilities refer to the infrastructure, buildings, and spaces (workshops and laboratories, classrooms, computer labs, simulation rooms, training kitchens and restaurants, healthcare simulations, agricultural and automotive workshops) specifically designed and equipped to support the delivery of vocational education and practical skills acquisition. These facilities are essential for creating an environment that simulates real-world working conditions, allowing students to gain hands-on experience and develop the skills needed for their chosen trades or professions.

TVET Quality Audit: Refers to a comprehensive process of assessment or evaluation that contributes to the improvement of technical and vocational education and training, aligning it with industry market needs and ensuring the employability of graduates.

Specific Competences: Specific competences are skills and knowledge that are directly related to a particular occupation, trade, or profession. These particular competences are often defined as industry standards requirements and constitute specific demands of the occupation.

General Competences: General competences, on the other hand, are knowledge and skills that are more broad and applicable across various occupations and professions; e.i Communication skills and teamwork.

Competency-based training: Competency-Based Training (CBT) is an educational approach that focuses on learners' ability to demonstrate specific skills, knowledge, and behaviors, known as competencies. In a competency-based training program, the emphasis is on what a learner can do and the application of knowledge in real-world situations rather than solely on the time spent in a classroom.

CHAPTER TWO: LITERATURE REVIEW

2.1.Influence of physical facilities on the quality of teaching and learning

Technical and Vocational Education and Training is defined as an education that makes students to acquire practical and applied skills that will help their beneficiaries to secure employment in specific occupations. The technical skills could not be acquired in blankness but rather in a fixed and functional workshop with the right tools, equipment, and machines so that the program can be implemented smoothly and effectively (Ojera *et al.*, 2021). It was found that the students 'performance decreased whenever classrooms were negligible (Bano *et al.*, 2022). The management of instructional and teaching materials impacted students' learning process. Rohanai *et al.* (2020) emphasized the importance of creatively arranging the physical layout of classrooms to facilitate effective instruction delivery and improve the learning experience. A successful learning environment requires a balanced provision and distribution of materials and equipment. A study by Ojera *et al.* (2021) conducted a study in West Nigeria to investigate the impact of workshops on students' motivation and academic performance in TVET schools. Their findings revealed a notable correlation between the presence of workshops and the levels of student motivation and academic achievement.The schoolwork suggested that budget should be increased to get enough funds to purchase physical facilities in TVET institutions since the availability and proper use of physical facilities could motivate students in the process of learning.

According to Danjuma *et al.* (2023), there are two classifications of physical resources in the learning environment namely permanent and semi-permanent facilities. The study also outlines examples of physical resources like laboratory equipment, teacher tools, and teaching aids among others. The study conducted by Audu *et al.* (2020) notifies that a great number of TVET institutions in Nigeria perform poorly because the workshops are with inadequate facilities and this leads to poor acquisition of skills among TVET students. It is in this line that Ekeh *et al.* (2022) emphasizes that the accessibility to workshop materials considerably affects the skills acquisition for great number of students.

Bamusi (2023) carried out a study about the quality of TVET programs and improvement measures and finally found that the big challenge facing TVET schools in skill acquisition was poor budget allocation to purchase workshop facilities. Facilities within learning institution are the basis factor

in enhancing student academic achievements. Akomolafe and Adesua (2016) highlighted that students are motivated in learning and learn better in the institution which is equipped with good physical facilities. In Nigeria, Mbeche *et al.* (2023) presented evidence that a significant point of contention among TVET trainers is the inadequacy and substandard condition of workshop materials and equipment in TVET institutions. Umar and Maaji (2010) in their publication, they highlighted that numerous TVET schools in Nigeria struggle to meet established standards due to factors such as insufficient workshop facilities and equipment, the entire negligence of necessary laboratory facilities essential to equip students with the practical skills required for employment in industries. Thus, providing sufficient workshop materials, equipment and machines are of great importance for effective implementation of TVET courses in any country. It is in this regard that Udofia (2017) stressed that there is a considerable relationship between workshop equipment for training and acquisition of employable skills.

According to Yangben (2014), TVET schools working in Ghana are facing problems of poor instructional materials and training equipment which leads to focusing on theories and consequently trainees lack expertise in their respective selected field of specialty. As TVET schools are mostly depending on training and the acquisition of skills, the poor provision of required facilities, materials, and equipment will have an insightful negative effect on practical skills acquisition. In Kenya, Ogony (2017) stated that many TVET schools work without sufficient workshop facilities and requirements, which don't have enough training equipment. The poor provision of training facilities degrades the importance of learnt skills to market skills wanted in the employment industries and enterprise organizations. The condition of training facilities affects the importance of acquired skills to the labor market. The poor quality of workshop training equipment leads to poor quality in skills acquisition and training skills that cause irrelevant skills among graduates who cannot add value to the business enterprises they are seeking occupation (Diop, 2020).

2.2. Continuous Professional Development for TVET trainers

The quality of teachers influences the quality of education in any country. It is evidently that Continuous Professional Development (CPD) plays a big role in improving how teachers master the subject content, adequate teaching methods and professional values and attitudes (Dizon *et al.*, 2019). For a professional, learning is also all about the maintenance, upgrading and widening of skills, knowledge and individual qualities for the aim of effective implementation of professional and technical duties (Friedman & Phillips, 2004).

For teachers, the main goal of continuous professional development is to sustain the quality in the academic thus personal and social learning outcomes in students (Timperley *et al.,* 2007). Besides, keeping a professional up to date with development in their field, the new acquired skills and competences upgrade practices. Continuous professional development can be intended to future work or increasing a personal career path (Collin *et al.,* 2012). It is better if continuous professional development focuses on the subject content knowledge, instruction and practice or on the set of courses (Curran *et al.,* 2019). Trainers also develop their attitudes as professionals by reflecting about the significance of what they do and what is considered as important. Continuous professional development also puts trainers of TVET in the position of empathy towards their trainees (Njenga, 2018). In TVET schools, trainers can learn in various ways, including learning by reflecting on the current practices and outcomes. CPD could take place through formal or informal interactions with colleagues and experts either individually or collectively (Desimone,2009). Monitoring and coaching, reflection, observing and being observed with feed-back from colleagues or more other knowledgeable can be other good ways of improving skills and knowledge (Williams, 2020).

Investing in quality of teachers leads to the best learning outcomes compared to other aspects invested that target learning improvement. Teachers' competences have been found to be of great value more than other factors as accessibilities of learning resources, class size and school location (Murchan, 2018). Professional development of teachers is considered as a serious mediator of the efficacy of educational guidelines and successful practice of education (Desimone,2009). Regardless the level of quality, continuous professional development equips teachers with the skills to uphold and ameliorate quality when handling the problems of teaching (Baan *et al.,* 2023).

Continuous professional enables trainers cope with anxiety and frustrations they face as they conduct training process in TVET. CPD helps teachers to keep up to date and remaining adaptable, upgrading a career, controlling competence and ensuring the general public is up to date (Friedman& Phillips,2004). Continuous professional development related to pedagogy ensures that trainers in TVET schools implement the best operative pedagogic practices. Teachers who attended various types of continuous professional development use variety of teaching strategies trainees in TVET schools (Luyten& Steen,2010). In this line, Limbroand Magma (2011) explained that TVET students taught by trainers who got in-service training were more likely to have good learning outcomes.

2.3.Influence of quality assurance on quality teaching and learning

Skills, knowledge and attitudes for youth are the cornerstone of economic progress and social development of a certain country (Goel, 2014). Technical and Vocational Education and Training is the foundation to train skilled workers needed for the labor market (Gyimah, 2020). According to Maclean and Pavlova (2011), TVET schools intended to help trainees acquire practical skills and knowledge for the world of work so as to raise opportunities for ensuring socio-economic development with a knowledge based economy and fast changing working place. Hence TVET schools provide people with not only technical and vocational skills, but also a wide variety of knowledge, skills and attitudes that are currently considered as essential for significant participation in labor and life. As qualitative TVET school is increasingly known as the basis of every development, quality assurance then is an essential process for attaining the general goals in TVET which will finally lead to the production of skilled labor responsible for sustaining national progress (Bamusi, 2023). Generally, quality is the ability or the extent to which a service, product, or phenomenon agreed according to a set standard, and which make it to be comparatively superior to others (Okeke, 2015).

Quality is not like a feature of a finished goods or services but includes an emphasis on internal processes and outputs which involves the amelioration of output. In relation to education, African Union (2007) explained that the quality is a multidimensional term, including all tasks and activities related to education system, including instruction and academic courses, research and scholarship, staffing, students, building, facilities, equipment, services to the society, learning

environment, considering national cultural values and attitudes and universal dimensions like exchange of knowledge, collaborating networking, flow of teachers and students, and international research projects. In the same vein, Oluwadare (2019) stated that quality in education can be conceived on the basis of how upright and competent teachers are; how they dedicate time to prepare the graduates for gaining the skills needed to solve the social issues. In TVET, quality is openly about the achievement of learning outcomes that is to say skills, knowledge and competences attained at the end of the process of learning that reflect the expectations of all stakeholders including parents, students, employers and society in general. Improving quality of TVET system is a foundation to any country which need to obtain profits of this all key aspect of education system. In the line of ensuring quality in TVET schools, it is better to create quality assurance context applied to all areas of TVET.

Many countries have started strategies for creating quality assurance mechanisms run in order to have TVET that provides quality training totheir trainees. Quality assurance as used in education refers to all types of inside and outside monitoring, evaluation or review or the regular review of educational plans to ensure that desired education standards, studentship and structure are being upheld (African Union,2007). In TVET, quality assurance is the course and actions for ensuring that qualifications, assessment and programme delivery match with fixed criteria hence to provide quality trainings (Chewachong, 2021). Quality assurance in TVET is the methodical controlling and assessment actions used by a learning institutions or system to have follow up of performance and to be sure of the attainment of quality outputs or quality improvement (Schnobel, 2019). The key actors to quality assurance in TVET include teachers or trainers, the team for quality assurance and evaluation, school administration, school inspectorate, and wide community.

2.4.Theoretical framework

The theoretical framework is the foundation from which all knowledge is constructed for a research study. It serves as the structure and support for the rationale for the study, the problem statement, the purpose, the significance and the research questions.This study adopted the system theory input-out model (Kyriakopoulos, 2021). This theory was developed by Ludwig Von Bertalanffy in 1956. System theory emphasized that an organized enterprise does not exist in an emptiness,rather its life depends on the environment where the organization is established. It

highlighted that the inputs provided by the immediate environment are consumed by the organization in order to produce anoutput. As it is used in this study the school is considered as an organization which needs inputs so that it can produce output.

Quality training provision in TVET depends on various factors that provide influences and physical facilities, continuous professional development, quality assurance are all needed to provide quality training in TVET schools. This theory has been applied in this TVET study as and it depicts a clear output to produce competent graduates with employability at labour markets . The output obliges, not only, quality inputs, but also quality process in TVET schools. In other words, competent graduates can be produced when appropriate TVET inputs, such as physical facilities, learning equipment and materials, human resources, financial resources and trainees, and TVET process, including educational leadership, teaching activities and learning services, human resource management, financial management, welfare management, administration and cooperation and partnership with various stakeholders, are ensured in quality and this suggests adequate management of TVET input and process in order to ensure qualified TVET output (WDA, 2018).

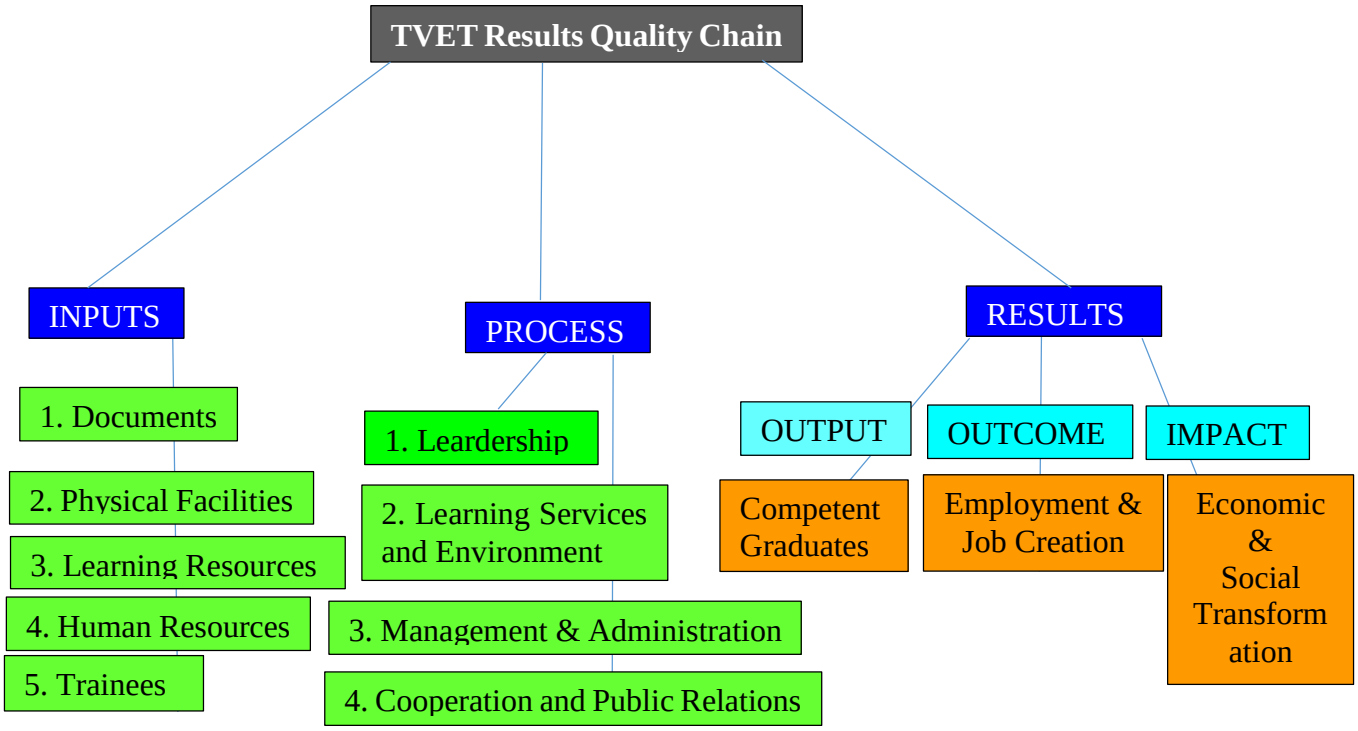

Figure 2.1: TVET Results Quality Chain

2.5. Conceptual framework

Researchers design conceptual framework in order to explain the relationship between variables of the study. The independent variables are factors influencing the quality training provision and the dependent variable is the quality training itself and the figure 2.2 explains more details.The three independent variables; Physical Facilities, Continuous Professional Development (CPD), and Quality Assurance exert influence on the dependent variable for quality training provision in TVET school and for this case; Physical Facilities provide students with the necessary resources and tools for hands-on skills acquisition and enhancing the overall quality of education; and for Continuous Professional Development (CPD), teachers who participated in CPD are likely to bring innovative teaching methods and industry-related knowledge into the classroom to positively influence the quality of training and thirdly Quality Assurance contributes to a consistent and high standard of education; therefore, enhancing quality training provison in TVET schools.

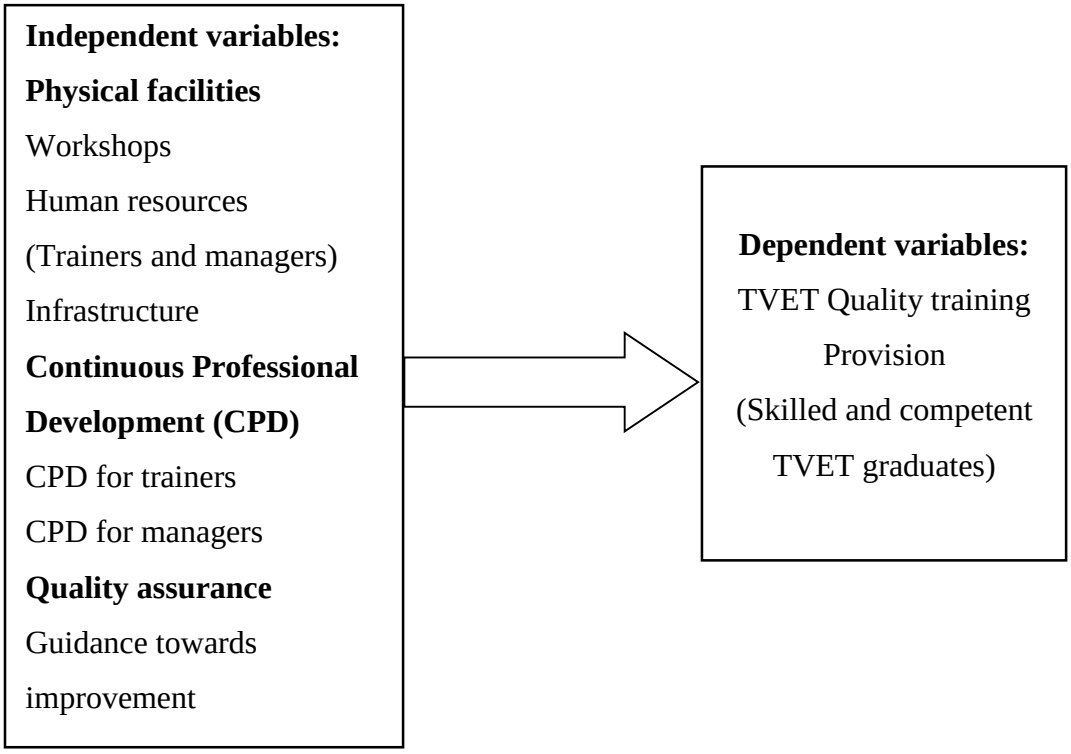

Figure 2.2: Conceptual framework of the study

2.6.Summary of Chapter two

The quality of teaching and learning in Technical and Vocational Education and Training (TVET) is deeply influenced by the availability and condition of physical facilities. TVET focuses on imparting practical and applied skills, necessitating well-equipped workshops, classrooms, and instructional materials. Research by Ojera et al. (2021) and Rohanai et al. (2020) has shown that inadequate facilities significantly decrease student performance and motivation. For example, a study in West Nigeria revealed a strong correlation between the presence of functional workshops and improved student motivation and academic achievement. The lack of sufficient budget allocations for purchasing and maintaining these facilities remains a significant challenge, leading to poorly equipped workshops and hindering the skill acquisition necessary for students' employability.

Continuous Professional Development (CPD) for TVET trainers plays a critical role in maintaining and enhancing educational quality. CPD ensures that teachers remain updated with the latest developments in their field, adopt innovative teaching methods, and improve their professional values and attitudes. Effective CPD focuses on subject content knowledge, instructional practices, and pedagogic techniques, all essential for boosting student learning outcomes. Studies have demonstrated that teachers engaging in CPD employ a wider range of teaching strategies and develop greater empathy towards their students (Timperley et al., 2007). Investment in teacher quality through CPD has a more significant impact on student achievement than other factors, such as access to learning resources and class sizes, as it helps teachers handle challenges effectively and deliver high-quality education.

Quality assurance in TVET is vital for ensuring that the education provided meets the standards expected by all stakeholders, including students, parents, employers, and society. Quality assurance encompasses all internal and external monitoring, evaluation, and review activities that ensure educational standards and student outcomes are upheld (Chewachong, 2021). It involves a systematic approach to assessing and improving various aspects of the educational process, from instructional methods and academic programs to facilities and equipment. By implementing robust quality assurance mechanisms, TVET institutions can consistently deliver high-standard education that aligns with labor market demands. This, in turn, leads to the production of skilled graduates who can significantly contribute to national economic progress and social development (Gyimah, 2020). Ensuring quality in TVET requires a comprehensive approach that includes effective management of physical facilities, continuous professional development for trainers, and stringent quality assurance practices.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Introduction

This chapter presents the research design, study area, target population, sampling techniques and sample size, research instruments, data collection techniques and data analysis. It also includes validity, reliability and ethical issues.

3.2. Research design

The study used a mixed research design and according to Creswell (2014), a mixed research design is a process for gathering, examining, and mixing both quantitative and qualitative data. Hence, mixed methods were used and quantitative data were collected to statistically measure at what extent physical facilities, continuous professional development, and quality assurance influence quality training provision while qualitative data were collected to describe qualities, characteristics of the respondents and gaining the contextual understanding of their perception and opinions towards quality training provision in TVET schools.

3.3. Study area

The study was conducted in Rwamagana district. Rwamagana district is a second order administrative division and is located in Eastern Province, Rwanda.The district counts urban and rural TVET schools and practical skills acquired are helping in changing people's standards of living.

3.4. Target population

The target population of the study was all TVET school managers, trainers and trainees of Rwamagana district with the sample size of 272 respondents including 10 school managers, 135 trainers and 157 trainees. The district counts urban and rural TVET schools and the selection of key respondents in TVET; school managers, trainers and trainees; therefore, the random selection approach was effective.

3.5. Sample size determination

The sample size was determined based on groups of respondents from the target population. The sample size was determined by a mathematical formula given by Dhokhikah *et al.* (2015).

$$\boldsymbol{n} = \frac{N}{1+N(\alpha)^2} (1)$$

$$\boldsymbol{n} = \frac{847}{1+847(0.05)^2} = 272 \ (2)$$

Where **N** is the sample frame,**n** is the sample size and $\boldsymbol{\alpha}$ is the margin of error

3.6. Sampling techniques and sample size

3.6.1. Sampling techniques

The study adopted multistage sampling procedures; stratified sampling, purposive sampling and simple random sampling. Stratified sampling was used to divide the respondents into three stata of trainees, trainers and school managers; Purposive sampling also known as judgmental or selective sampling was used to select key respondents with key information basically school managers and Simple random sampling was used to select the respondents and every trainee and trainer had equal chance of being selected for the sample and for the same, the Eastern province, Rwamagana district and the Ten TVET schools were also randomly selected.

3.6.2. Sample size

The sample size of the study was 10 TVET school managers, 135 TVET trainers and 157 TVET trainees.

Table 3.1: Distribution of target population and sample size

Respondents	**Population**	**Sample size**
TVET School Managers	15	10
TVET Trainers	275	135
TVET Trainees	557	157
Total	**847**	**272**

3.7. Research instruments

3.7.1.Questionnaire

For a well-balanced questionnaire that incorporates both open-ended and closed-ended questions, firstly the researcher considered the research specific objectives and a number of steps was gradually followed; define research objectives, to clearly incorporate the information needed; identify target participants, to define the target population and consider its characteristics, knowledge, and experience; determine question types, to decide closed-ended and open-ended

based on the type of information need; developclosed-ended questions in clear and concise way; develop open-ended questions, to capture qualitative data, perception and opinions of the respondents; pilot testing, to identify and remove any issues with question wording, clarity, or ambiguity in the work instrument; refine and revise, based on pilot testing feedback, the researcher refined and revised the questionnaire; ethical considerations, to ensure that the questionnaire respects ethical considerations, including privacy and confidentiality; final review, to conduct a final review of the questionnaire and to ensure whether it aligns with the research objectives; administer the questionnaire, the researcher distributed thequestionnaires to the target participants.

The questionnaire is the most appropriate data collection tool especially in survey studies (Patten, 2016). The questionnaires contained both open-ended and closed-ended questions with likert scales of 4= Strongly Agree, 3= Agree, 2=Disagree and 1=Strongly Disagree. The open-ended questions give the respondents thetotal freedom of expressing their opinions and ideas while closed-questions obliged the respondents to choose among numerous items. The researcher used questionnaire for TVET managers, trainers and trainees. The researcher preferred to use the questionnaire because it is cheap, saves time, reach a wide geographical area, easy to administer and easy to ensure anonymity.

3.7.2.Guided interview

A guided interview is a type of research interview in which the interviewer follows a predetermined set of questions or topics. The respondents in study were asked to provide answers in their own words and to raise points they believed important.

3.8. Pilot study

The pilot study was undertaken outside of the study area with fifty individuals, ultimately twenty percent of 272 sample size. The main purpose of carrying out pilot study was to ensure the validity and reliability of the research instrument by removing any kind of ambiguous items on the tool of work. It helped the researcher to review the instrument by including other items that can be necessary.

3.9.Validity and reliability

3.9.1. Validity

Validity is the suitability of the research instrument in measuring what is supposed to measure (Mohamad *et al.*, 2015). Content validity is the degree to which the content of the research instrument relates to content which is intended to be measured (Creswell, 2012). In this study, the researcher controlled the content validity to ensure that the research instruments are enabling to realize the objectives of this study. To adequately control the content validity, expert-judgment technique was used. This means that researcher asked for judgments and opinions from experts in education, curriculum and instruction. These experts were given the instruments and the research objectives and questions in order to make judgments regarding how well the questions items related to intended objectives and research questions. The researcher ensured integration of judgments and opinions from the experts before undertaking data collection process.

3.9.2. Reliability

A reliable instrument is which that can be administered many times to measure the similar objects, and produce same results (Wang *et al.*, 2022). In this study, the test retest technique was used to test the reliability. For the same, the instruments were given twice to fifty respondents. These respondents were selected purposively from the school which was not part of the main study. Firstly, the questionnaire was given to the respondents and their responses were kept. Secondly, after one week the same respondents were given the similar questionnaire and their responses were also kept. Thereafter, the reliability test through Cronbach's alpha of 0.70 or higher was considered acceptable. As results, the correlation coefficient of 0.76 indicated that there is a high positive correlation between variables being measured.

3.10. Data collection techniques

Data collection techniques refer to the approaches used to gather data. The study used guided-interview, time interval and the- on -spot-collection techniques. The researcher used the-on-spot-collection technique where personally he distributed questionnaires to the TVET trainers, trainees, school managers and waited for them to fill the questionnaires and immediately the researcher collected questionnaires on the spot. For school managers, the researcher used time interval technique in which he distributed the questionnaires and waited until two weeks in order to collect them. The researcher conducted the guided interview to gather data from the respondents and along

discussion the interviewer provided clarification. The interview included open-ended and closed-ended questions to collect data on the factors influencing quality training provision in TVET schools. Before conducting interview the researcher requested appointment from school managers for his/ her availabilities.

3.11. Data analysis methods

The researcher used descriptive statistics to analyze and display quantitative data. In the same line, frequencies, percentages and means were used to describe the factors influencing quality training provision in TVET. In addition, multiple linear regression was used to evaluate the influence of physical facilities, continuous professional development and quality assurance on quality training provision in TVET schools. The Statistical Package for Social Sciences (SPSS) version 26 was used to calculate the mean (M) and standard deviation (SD).

The multiple linear regression was applied in analzing quantitative data. Multiple linear regression is a statistical technique used to correlate more independent variables or one dependent variable. It extends to simple linear regression, which involves predicting one dependent variable based on a single independent variable (simple linear regression) and more than two independent variables (multiple linear regression).

The mathematical model of multiple linear regression appears as:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$

Where Y stands for quality training provison, β_0 stands for constant or intercept, β_1, β_2 and β_3 stand for coefficients of objective 1, 2 and 3 respectively. The X_1, X_2 and X_3 stand for the set of independent variables of objective 1, 2 and 3 respectively.

3.12. Ethical issues

Before actual collection of data from the respondents in the study area, the researcher got clearance form from University of Rwanda-College of Education. The researcher asked permission from Rwamagana district. The researcher got the informed consent from the TVET trainees verbally before administering questionnaire to them. For the TVET school managers, Trainers and Tainees, the researcher used the written informed consent for their agreement. The researcher asked

respondents to avoid writing their names on the questionnaires to ensure anonymity. Furthermore, the information from the study was kept in the safe place in order to ensure confidentiality.

3.13. Summary of Chapter Three

Chapter three of the study focused on the methodology employed to study the factors influencing quality training provision in TVET schools. The research design utilized a mixed methods approach, combining both quantitative and qualitative data to measure and understand the impact of physical facilities, continuous professional development (CPD), and quality assurance on quality training in TVET schools. Quantitative data were collected to statistically assess these influences, while qualitative data provided deeper insights on respondents' perceptions and opinions. The study was conducted in Rwamagana district, Rwanda, involving a target population of 272 respondents, including TVET school managers, trainers, and trainees. Sampling techniques included stratified sampling, purposive sampling, and simple random sampling to ensure a representative sample.

The methodology detailed the process for data collection and analysis. A well-structured questionnaire, with both open-ended and closed-ended questions, was used to gather information from the respondents. The study also employed guided interviews to capture more detailed qualitative data. A pilot study was conducted to test the validity and reliability of the research instruments, with adjustments made based on feedback. Data analysis involved descriptive statistics to summarize the data and multiple linear regression to evaluate the factors influencing quality training provision in TVET schools. Ethical considerations were taken into account through informed consent, confidentiality, and securing permissions from relevant authorities.

CHAPTER FOUR: DATA PRESENETATION, INTERPRETATION AND DISCUSSION

4.1. Introduction

This chapter deals with the presentation, interpretation, analysis and discussion in relation to the research objectives and research questions that guided the study. The specific objectives were; to determine the extent to which physical facilities influence quality training provision in TVET schools, to investigate the extent to which continuous professional development for trainers influence quality training provision in TVET schools and to assess the extent to which quality assurance influence quality training provision in TVET schools in Rwamagana district.

To determine the extent to which physical facilities, continuous professional development and quality assurance influence quality training provision in TVET schools, the study used R- squared (R^2) extracted from multiple linear regressionmodel used. The R- squared (R^2) which serves as a useful metric was used to determine the collective influence of physical facilities, CPD, and QA on quality training provision; moreover, R-squared (R^2) could also play a crucial role in understanding the extent to which the mentioned factors collectively exert the variation on quality of training provided. However, it was also complemented with additional analysis and interpretation for more understanding on the relationships between explanatory variables and the dependent variable.

4.2. Characteristics of the respondents

The respondents were categorized in three groups; trainees, trainers, and school managers. The study focused on gender and academic qualification for trainers and school managers; and gender and level of education for trainees.

4.2.1. Characteristics of trainees

Characteristics of the trainees refer to various attributes, qualities, and backgrounds of trainees and the study only necessitated gender and academic levels.

4.2.1.1. Gender for trainees

The gender of the trainees refers to the distinction between male and female of individuals involved in the study as respondents and the figure 4.3 presents the gender related results.

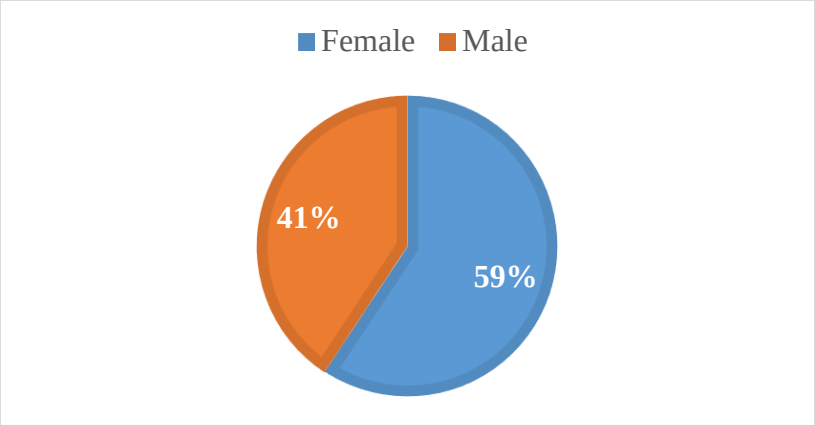

Figure 4.3: Gender distribution for trainees

Based on results in the figure 4.3, the study found that about 59% of the sampled trainees were female while 41% were male and these findings are coherent with the report of NISR, 2021 where the enrolment of girls in TVET schools were at 46.7%with 53.3% of male.

4.2.1.2. Educational level for trainees

Levels are generally structured to provide a progressive academic pathway in Rwandan TVET trades, especially for secondary studies, levels are ranged from Level 1- Level 5.

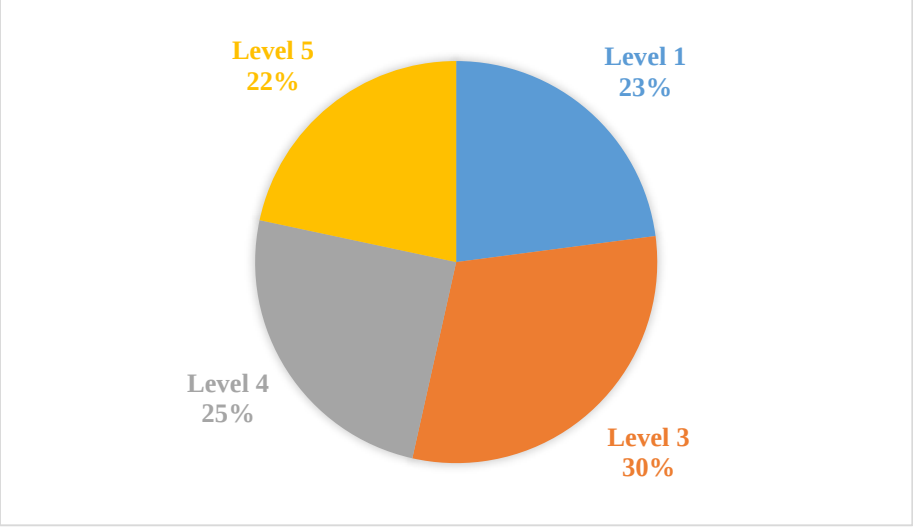

Figure 4.4: TVET educational levels for trainees

The figure shows that 23% of the sampled trainees were in level I, 30% of trainees in level III, 25% of trainees in level IV and 22% of trainees in level V. The differences in scores of levels was

due to the ongoing school activities when the study was taking place and available trainees participated in the survey.

4.2.2. Characteristics of trainers

The characteristics of trainers can influence how they interact with their students, the teaching approaches they use,the overall learning environment within TVET institutions and the study only considered gender and academic qualification.

Table 4.2: Characteristics of trainers

Gender of respondents	**Frequency**	**Percent**
Female	41	30.4
Male	94	69.6
Total	**135**	**100%**
Academic qualification	**Frequency**	**Percent**
A2	28	20.7
A1	58	43
A0	45	33.3
Masters	4	3
Total	**135**	**100%**

Table 4.2 shows that male dominates the sample with 69.6% while 30.4% for female. Thus, the number offemalein technical schools is stilllimitedcompared to counter part male trainers; while in the MINEDUC report 2022, the rate of gender distribution among TVET trainers remains consistent with males representing 50.7% and females representing 49.3%. The difference in gender distribution among the sampled trainers might result to the narrowed study area of only 10 targeted TVET schools in one district.

The table 4.2 shows the academic qualification of the sampled TVET trainers in the study area. The findings showed that 20.7% of the sampled trainers were A_2 qualified, 43% were A_1 qualified, 33.3% were A_0 qualified and 3% were Master's degree graduates; and the indication is that trainers owe to be holders of at least a relevant TVET certificate or a degree aligned with the Rwanda TVET Qualifications Framework (RTQF).

4.2.3 Characteristics of TVET school managers

The characteristics of school managers can influence the overall management, decision-making processes, and the organization within TVET institutions and the study considered only gender and academic qualification.

Table 4.3: Characteristics of TVET school managers

Gender of the respondents	Frequency	Percent
Female	4	40
Male	6	60
Total	**10**	**100**
Academic qualification	Frequency	Percent
A2	16	11.85
A1	54	40
A0	64	47.41
Masters	1	0.74
Total	**135**	**100**

Table 4.3 shows that male dominates the sample with 60% while female were 40%. The research findings revealed that 47.41% of the trainers were A_0 holders, 40% were A_1 degree holders, 11.85% were A_2 certificate holders while only 0.74% were Master's degree holder.

4.3 Influence of physical facilities on quality training provision in TVET schools

The first research question that guided the study was about finding out how physical facilities influence the quality traing provision in TVET schools of Rwamagana district. Descriptive statistics were used to understand the overall perception of trainees, trainers regarding the influence of physical facilities on teaching and learning experience, and the nature of the study only necessitated the mean and standard deviation.

Table 4.4: Trainees'responses

Variables	Obs	Mean	Std. dev.
Presence of variety of materials in workshop	157	2.70	0.78
Trainees carry out practice in workshop	157	3.65	1.70
Workshop is large enough for trainees	157	2.98	0.67
Practices in workshop help internalize practical skills	157	3.62	1.56
Workshop is accessible	157	2.98	0.90
Equipment help to acquire employable skills	157	2.79	1.09
Trainees learn better through practices	157	3.60	1.78
Poor workshop hampers skills acquisition	157	2.99	0.96
Adequate learning facilities improve motivation in acquiring skills	157	2.80	0.62
Presence and use of safety equipment	157	2.22	0.81
Maintenance and Repair of tools and equipment	157	2.68	0.88
Overall mean scores		**3.00**	**1.09**

Based on the reviewed literature and on the past research findings; among the large number of factors which were expected to influence quality training provision in TVET schools; only eleven potential explanatory variables were considered for this specific objective and examined for their effect on quality training provision and these are presented as follows:

The trainees stongly agreed that they carried out practices in workshop (M=3.65, SD=1.70), practices in worshop help internalize practical skills (M=3.62,SD=1.56), learning better through practices (M=3.60,SD=1.78). The respective standard deviations indicate that there is heterogeneity in the responses given by the respondents. The implication is that workshop is essential in influencing the quality training provision in TVET schools.

Trainees agreed that there is variety of materilas in workshop (M=2.70, SD=0.78) and they also agreed that equipment help to acquire employable skills (M=2.79,SD=1.09), Adequate learning facilities improve motivation in acquiring skills (M=2.80, SD=0.62) and (M=2.68, SD= 2.68). This implies that these factors influence the quality of trainiging provision in TVET schools. It was agreed that workshop is large enough for trainees (M=2.98, SD=0.67), the workshop is accessible (M=2.98,SD=0.90), and poor workshop hampers skills acquisition (M=2.99,SD=0.96). Furthermore, trainees were not completely unanimous on the role of presence and use of safety

equipment (M=2.22, SD=0.81) and these respective standard deviations indicate the existence of the related homogeneity to the mean. The overall mean scores (M=3.0, SD=1.09) and it confirms that trainees agreed that physical facilities influence quality training provision in TVET schools. There is need to increase and ensure quality of physical facilities in TVET schools in order to achieve quality training provision. After finding out how trainees conceived and described the influence on physical facilities on the quality training in TVET, the rearcher also presented the findings from trainers which revealed the influence of physical facilities on quality training provision in TVET schools

Table 4.5: Trainers' responses

Variables	Obs	Mean	Std. dev.
Most of trainings take place in workshop	135	2.53	1.23
Workshops are adequately equipped with materials	135	2.74	0.60
Variety of materials are available according to trade	135	2.91	0.69
Employable skills are taught through various equipment	135	2.64	0.59
Workshops are large enough	135	3.18	1.79
Workshops are accessible for all students	135	3.82	1.03
Library is available and used effectively	135	2.99	1.17
Computer Lab is available and used effectively	135	2.82	0.92
Overall mean scores		**2.95**	**1.02**

Based on the reviewed literature and on the past research findings; among the large number of factors which were expected to influence quality training provision in TVET schools; only eight potential explanatory variables were considered for this specific objective and examined for their effect physical facilities on quality training provision and these are presented as follows:

The table 4.5 includes the views from trainers about the influence of physical facilities on quality training in TVET schools. The access to workshops for all students (M=3.82, SD=1.03) and trainers strongly agreed that it influences quality training provision in TVET schools. This implies that the access to workshops was found to be among key factors that influence quality of training in TVET schools and trainers affirmed that hands-on experience enhances trainees understanding and proficiency in various trades. Most of training take place in the workshops (M=2.53, SD=1.23) and trainers agreed on that workshops are specialized spaces equipped with tools, machinery, and

specific resources to various trades, creating an environment that closely simulates real-world working conditions.

Workshops are adequately equipped with materials (M=2.74, SD=0.60). Trainers consented on the importance of having necessary tools, machinery, and resources readily available and the factor was considered by trainers as a pivotal role in skills training acquisition. Employable skills are taught through various equipment (M=2.64, SD=0.59) and trainers coincided on the integration of employable skills using a variety of equipment as a cornerstone of quality training provision in TVET schools.

Workshops are large enough (M=3.18,SD=1.03) and trainers affirmed that a comfortable environment fosters a positive and conducive atmosphere for learning. They also reiterated that a larger workshop layout enables trainers to organize tools and machinery in a way that maximizes efficiency reducing downtime and allowing for smooth teaching and learning process transitions, Library is available and used effectively (M=2.99,SD=1.17) and the trainers emphasized on the role of availability of a library to make sure that trainees benefit access to supplementary resources that can enrich their understanding of theoretical concepts, to conduct effective research, to critically analyze information and moreover to access e-books resources and online databases; to access up-to-date information for overall quality education.

Availability of computer lab and its effective use (M=2.82,SD=0.92). Trainers simultaneously agreed on the importance of the availability of a computer lab as it enables students to acquire essential technological skills relevant to their trades, and reiterated that the effective use of the computer lab ensures that students are not only familiar with traditional tools but also competent in utilizing digital resources to solve technical challenges.

Availability of variety of materials according to trade (M=2.91,SD=0.69). Trainers agreed on the latter principal that the use of variety of materials ensures that students receive a well-rounded education, gaining exposure to various equipments that they are likely to encounter in their future careers. The overall mean scores (M=2.95,SD=1.02) indicates that respondents agreed on that physical facilities influence the quality training in TVET schools in Rwamagana district. The

influence of physical facilities on quality training provision in TVET schools was also confirmed by the majority of school managers, definitely SM_1 and SM_5 and they qualitatively reported that;

> "*The physical facilities are of great importance when imparting hands-on skills to trainees. Their availability and effective use influence quality training provision in TVET schools. ……., I normally encourage the trainers to avail and use physical facilities effectively in order to help trainees gain more from training process*"

4.3.3 Influence of Continuous Professional Development on quality training

The influence of continuous professional development on quality training in TVET schools refers to the impact of ongoing professional development activities for enhancing the quality of training within the context of technical and vocational education. Continuous Professional Development in TVET settings involves the systematic and continuous process of learning and skill enhancement for trainers, and other professionals involved in technical and vocational training. The table 4.6 presents the findings from respondents about the influence of continuous professional development on quality training in TVET schools in Rwamagana district.

Table 4.6: Descriptive statistics on continuous professional development by trainers

Variables	Obs	Mean	Std. dev.
Trainers attend continuous professional development regularly	135	3.46	1.61
CPD helps trainers to improve training practices	135	2.67	0.44
CPD covers all subjects taught in a trade	135	3.40	1.74
CPD provides opportunities to reflect on training practices	135	2.64	0.59
Through CPD pedagogical practices be upheld	135	3.21	0.54
New teaching methods are shared and acquired through CPD	135	3.47	1.06
CPD provides strategies for learning environment's management	135	3.30	1.87
CPD helps trainers to widen and transfer skills	135	3.23	0.60
CPD improves student's outcomes	135	3.49	1.11
CPD engages in Lifelong Learning	135	2.76	1.60
CPD adapts to educational changes	135	3.40	1.49
CPD updates subject knowledge	135	3.27	1.72
Overall mean scores		3.11	1.19

Based on the reviewed literature, on the past research findings, and considering the information from the informal survey; among the large number of factors that were expected to influence quality training provision in TVET schools; only twelve potential explanatory variables were considered for this specific objective and were examined for their effect of continuous professional development on quality training provision and these are presented as follows:

The trainers attend continuous professional development regularly (M=3.46, SD=1.61) and trainers agreed on this variable that it influences quality training provision in TVET schools. This implies that the CPD programs provide trainers with practical and actionable strategies that can be applied directly in the TVET classroom or training environment.

CPD helps trainers to improve training practices (M=2.67, SD=0.44) and trainers agreed on this variable that it influences quality training provision in TVET schools. Trainers highlighted that the CPD helps keep their skills and knowledge up to date; boost their confidence; and enables them to make better decisions.

CPD covers all subjects taught in a trade (M=3.40, SD=1.74) and trainers agreed on this variable that it influences quality training provision in TVET schools. Trainers reiterated the dual importance of both specific and general competencies essential for TVET graduates and underlined their coupled continuous professional development (CPD) and specific comptences are specialized skills required for a particular trade or profession while general competencies refers to possession of broader skills needed for a TVET graduate to thrive in the contemporary workforce.

CPD provides opportunities to reflect on training practices (M=2.64, SD=0.59) and trainers agreed on this variable that it influences quality training provision in TVET schools. As a CPD session offers opportunity to trainers to reflect on how to create a conducive environment for learners, to integrate individual and group assessment, to use and encourage good communication in the classroom, to continuously improve class management and other daily routines.

Through CPD pedagogical practices be upheld (M=3.21, SD=0.54) and on this trainers, agreed on its influence on quality training provision in TVET schools, as a CPD session offers opportunity to trainers to reflect on the common teaching techniques and methods, lesson delivery and overall class management.

New teaching methods are shared and acquired through CPD (M=3.47, SD=1.06) and trainers agreed on this variable that it influences quality training provision in TVET schools, as trainers exhibited a need of a mix pedagogical and technical training. TVET trainers need to master interactive and practical teaching techniques, such as hands-on activities, simulations, assessments methods and to make the learning experience more enjoyable, profitable and relevant.

CPD provides strategies for learning environment management (M=3.30, SD=1.87) and trainers agreed on this variable that it influences quality training provision in TVET schools. Learning environment refer to the physical, emotional, and psychological contexts in which learning occurs, with minutious strategies and managerial skills on learner, knowledge, assessment, and community centered approaches.

CPD helps trainers to widen and transfer skills (M=3.23, SD=0.60) and trainers agreed on this variable that it influences quality training provision in TVET schools and focused on mentorship, coaching, and training session delivery approaches.

CPD improves student's outcomes (M=3.49, SD=1.11) and trainers agreed on this variable that it influences quality training provision in TVET schools, as CPD impacts on enhancing teaching and learning cursis, improving instructional methods, and promoting a holistic assessment.

CPD engages in Lifelong Learning (M=2.76, SD=1.60) and trainers agreed on this variable that it influences quality training provision in TVET schools and adds up inputs on career advancement to remain up-to-date on industry trends, on adaptability to change in technology, market, societal trends; on increased confidence; acquiring new knowledge and skills through lifelong learning boosts individuals' confidence and self-esteem.

CPD adapts to educational changes (M=3.40, SD=1.49) and trainers agreed on this variable that it influences quality training provision in TVET schools as it's the opportunity to reflect on curricular changes; including the addition or removal of subjects, integration of new technologies, alignment with current educational standards; CPD adapts to pedagogical changes, changes in teaching and learning methods; CPD adapts to assessment and evaluation changes, revisions to assessment methods, evaluation criteria, and grading systems.

CPD updates subject knowledge (M=3.27, SD=1.72) and trainers agreed on this variable that it influences quality training provision in TVET schools; emulating insights on reading academic journals and publications of his/ her field; collaboration with established network, both within and outside the institution; on seeking a mentor able to guide, share insights, as mentorship is a valuable resource for professional development; on taking advantage of library resources by utilization of institution's library resources, with focus on the most current and relevant sources. The overall mean scores (M=3.19 SD= 1.19) indicates that the trainers agreed that continuous professional development influence the quality training in TVET schools in Rwamagana district. During the guided interview, the school managers reiterated that the continuous professional development is crucial in ensuring quality training provision in TVET, and definitely SM_2 and SM_7 qualitatively reported;

"In my school, continuous professional development is very important in improving quality training provision……,I conduct regular visit to identify the areas in need of improvement so that the plan of professional development can be made to uphold quality training provision and mainly, I train my trainers on competence-based training"

4.3.4 Influence of quality assurance on quality training provision

The table 4.7 shows the findings from respondents on the influence of quality assurance for quality training provision in TVET schools of Rwamagana district.

Table 4.7: Descriptive statistics of quality assurance for trainers

Variables of quality assurance	Obs	Mean	SD
Advice from quality assurance help in improving training practice	135	3.77	0.525
Quality assurance oversees the quality of training provision	135	3.51	0.499
Quality assurance helps in improving workshops	135	2.53	0.502
Learning environment is ameliorated through quality assurance	135	2.64	0.539
Acquisition of practical skills are improved through quality assurance	135	2.61	0.660
Quality assurance ensure that curriculum is implemented effectively	135	2.88	0.700
Quality assurance ensure that training provision is labor market - oriented	135	2.65	0.684
Quality of learning facilities are improved through quality assurance	135	2.5	0.612
Quality assurance ensures stakeholder engagement and participation	135	2.81	0.821
Quality assurance ensures timely assessment and evaluation	135	2.39	0.609
Quality assurance ensures standards and Guidelines	135	2.52	0.584
Overall Scores		2.80	0.612

Based on the reviewed literature and on the past research findings; among a large number of factors that were expected to influence quality training provision in TVET schools; only eleven potential explanatory variables were considered for this specific objective and were examined for their effect of quality assurance on quality training provision and these are presented as follows:

Advice from quality assurance helps in improving training practice (M=3.77, SD=0.525) and trainers strongly agreed on this variable that it influences quality assurance in TVET schools as advice from quality assurance contributes to the overall enhancement of training practices in TVET schools by promoting adherence to standards, continuous improvement, alignment with industry needs.Quality assurance oversees the quality of training provision (M=3.51, SD=0.499) and trainers strongly agreed on this variable that it influences quality assurance in TVET schools as per it involves a comprehensive approach to ensure that training provision meets established standards and ensures that curriculum aligns with industry needs.

Quality assurance helps in improving workshops (M=2.53, SD=0.502) and trainers agreed on this variable that it influences quality assurance in TVET schools and trainers coincided that quality assurance plays a vital role in improving workshops in Technical and Vocational Education and Training schools as the oversight provided by quality assurance processes helps ensure that workshops meet established standards, align with industry needs, and provide effective learning environments.

Learning environment is ameliorated through quality assurance (M=2.64, SD=0.539) and trainers agreed on this variable that it influences quality assurance in TVET schools and highlighted that quality assurance in Technical and Vocational Education and Training schools plays a crucial role in ameliorating the learning environment as it involves a systematic processes and measures to ensure that the educational experience provided to students is of high quality, effective and conducive to learning.

Acquisition of practical skills are improved through quality assurance (M=2.61, SD=0.660) and trainers agreed on this variable that it influences quality assurance in TVET schools as quality assurance in TVET schools ensures that practical skill acquisition is a central focus of the training

process by aligning curriculum with industry needs and continuasiouslyimproving teaching methods, to practically enhance skills among trainees.

Quality assurance ensures that curriculum is implemented effectively (M=2.88, SD=0.700) and trainers agreed on this variable that it influences quality assurance in TVET schools as quality assurance in TVET schools ensures the effective implementation of the curriculum by emphasizing alignment with industry standards, regular reviews, stakeholder involvement, instructor training, and ongoing monitoring and evaluation.

Quality assurance ensures that training provision is labor market-oriented (M=2.65, SD=0.684) and trainers agreed on this variable that it influences quality assurance in TVET schools as quality assurance in TVET schools ensures that training provision is labor market-oriented by actively involving stakeholders, conducting needs assessments, aligning with qualifications frameworks, and ensuring that graduates are well-prepared for successful entry into the workforce.

Quality of learning facilities are improved through quality assurance (M=2.5, SD=0.612) and trainers agreed on this variable that it influences quality training provision in TVET schools as quality assurance in TVET schools enhances the quality of learning facilities by focusing on safety, modernization, resource adequacy, accessibility, availability, continuous improvement and creating conducive and effective learning environment.

Quality assurance ensures stakeholder engagement and participation (M=2.81, SD=0.821) and trainers agreed on this variable that it influences quality assurance in TVET schools as quality assurance ensures stakeholder engagement and participation by involving relevant individuals and groups in the decision-making, planning, and evaluation processes, by creating structures, communication channels, and collaborative opportunities that involve employers in the school, school representatives, community members, and other relevant groups in the educational process.

Quality assurance ensures timely assessment and evaluation (M=2.39, SD=0.609) and trainers agreed on this variable that it influences quality assurance in TVET schools as per quality assurance plays a crucial role in ensuring timely and effective assessment and evaluation processes

with feedback mechanisms, continuous monitoring to measure the quality of education and the progress of students and ensures that assessment and evaluation processes in TVET schools are not only timely but also fair, reliable, and aligned with educational objectives and industry standards.

Quality assurance ensures standards and Guidelines (M=2.52, SD=0.584) and trainers agreed on this variable that it influences quality assurance in TVET schools and on one hand, quality assurance ensures that TVET schools consistently adhere to established standards and Guidelines, contributing to the delivery of high-quality education and training programs; and on the other hand, TVET authorities conduct a quality audit to assess the quality,the effectiveness of education, the training programs within a TVET institution and the primary objective of a TVET quality audit is to ensure that the institution is meeting established standards, guidelines, and best practices, ultimately contributing to the provision of high-quality technical and vocational education.

The overall mean scores(M=2.80, SD=0.612) indicates that the trainers of TVET schools in Rwamagana district agreed that, quality assurance positively influences the quality training provision. During the guided interview the school managers reiterated that, quality assurance is important in influencing quality training provision in TVET schools. The great number of school managers reported that they dedicate their time on quality assurance with the aim to improve quality training provision and, definitely SM_3 and SM_8 qualitatively reported that;

"*In my school, I conduct classroom inspectionsto get insight on what happening in the teaching and learning environment. During the inspection, I take time to check students' works and the processes implemented for quality training provision in the classrooms and even in the workshops*"

The findings from the study were also obtained through regression analysis as discussed below:

4.4. Influence of physical facilities on quality training provision

4.4.1 Trainees' views on the influence of physical facilities on quality training provision

Physical facilities play a crucial role in influencing quality of training provision in Technical and Vocational Education and Training (TVET) schools. The adequacy, functionality, appropriateness, adaptability, up-to-date and modernized of physical facilities contribute significantly to creating a

conducive learning environment and enhancing the overall training experience for students. Except the presence and use of safety equipment among other variables tested, the key factors that statistically siginificant influence quality training provision in TVET schools are; presence and abundance of variety of materials in workshop, trainees carrying out practice in workshop, large workshop for trainees, practices in workshop to internalize practical skills, accessibility to workshops, equipment enabling to acquire employable skills, trainees learning better through practices, poor workshop hampering skills acquisition, adequate learning facilities maintaining motivation in acquiring skills and maintenance and repair of tools and equipment; were all significant at 5% level of significance.

As mentioned in the summary of the table 4.8, the computed R-squared was 0.2907; and to respond to the first objective and its research question, the study found that physical facilities' influence on quality training provision in TVET school showed a moderate correlation between predicted and explanatory variables of R^2=0.2907, thus; physical facilities enhanced quality training provision in TVET schools by 29.1%. It implies that a 29.1% R-squared indicates that physical facilities, such as workshops, classrooms, tools and equipments, etc..,collectively account 29.1% while the remaining 70.9% of the variation in quality training provision remain unexplained, which could be due to other factors not measured by the study.

Table 4.8: Influence of Physical facilities on quality training provision vs trainees

Availability of Physical Facilities	Coef.	Std. Err.	t	P>|t|
Presence of variety of materials in workshop	0.0068	0.0516	0.13	0.048
Trainees carry out practice in workshop	0.0447	0.0530	0.84	0.022
Workshop is large enough for trainees	0.0786	0.0499	1.57	0.006
Practices in workshop help internalize practical skills	0.0084	0.0625	0.13	0.048
Workshop is accessible	0.1322	0.0365	3.62	0.000
Equipment help to acquire employable skills	0.0814	0.0325	2.51	0.013
Trainees learn better through practices	0.0424	0.0449	0.95	0.019
Poor workshop hampers skills acquisition	-0.0620	0.0265	-2.34	0.020
Adequate Learning facilities maintain motivation in acquiring skills	0.1027	0.0454	2.26	0.025
Presence and use of safety equipment	0.0545	0.0402	1.36	0.177
Maintenance and Repair of tools and equipment	0.0725	0.0293	2.47	0.014
_cons	0.8364	0.1059	7.9	0.000

Number of obs = 157, F(11, 209) =7.79, Prob > F= 0.0000, R-squared (R^2)= 0.2907, Adj R-squared (Adj. R^2)= 0.2533 and Root MSE=0.34875

The study findings presented in table 4.8 showed that the presence of variety of materials in workshop influenced positively the quality training provision for trainees in TVET schools and was significant at 5% level of significance. The positive influence of presence of variety of materials in workshop on quality training provision for trainees in TVET schools indicates that most of trainees in TVET schools expect to perform practicals through hands-on learning opportunities. A variety of materials in workshops allows trainees to engage in hands-on learning experiences. Working with different materials provides practical exposure to various industry-related tasks, enhancing the trainees' ability to apply theoretical knowledge to real-world scenarios; and also working with a variety of materials encourages creativity and innovation among trainees. It allows them to explore different possibilities, experiment with designs, and develop innovative solutions to problems. This fosters a mindset of a continuous improvement and adaptability. Thus; the findings agree with the research conducted by Maingi (2019) who confirmed that availability of tools and equipments in the workshop influenced the quality of training in TVET institutions.
The study findings presented in table 4.8 showed that trainees carrying out practice in workshop influences positively the quality training provision in TVET schools and is statistically significant at 5% level of significance. The positive correlation between predictor and explanatory variable indicates that trainees carrying out practical activities in workshops fosters hands-on learning, skill development, critical thinking, and the application of knowledge in real-world contexts. This approach enhances the overall educational experience and prepares trainees for successful and impactful careers in their chosen technical and vocational fields; and thus, these results are in line with the research conducted by Mayombe (2023) who revealed that the use of Experiential Learning Techniques (ELT) in Vocational Education Training (VET) programmes help the trainees to gain real-world skills, hence contributing to their empowerment in terms of work experience and competence for their future employment. Based on the findings, the study concluded that ELT is an effective instrument to promote VET programmes for disadvantaged and unemployed youths.

The study findings presented in table 4.8 also revealed that the variable " Workshop is large enough for trainees" influenced positively the quality training provision in TVET schools and is

statistically significant at 5% level of significance. The positive influence between physical facilities and explanatory variables implies that there is positive contribution in several ways like comfortable learning environment. A workshop that is large enough for trainees provides a conducive and spacious learning environment. Adequate space allows a proper organization of tools, equipment, and workstations, contributing to a more conducive and less congested atmosphere for learning, hence approapriate assimulation for trainees. The findings agree with the research conducted by Ojera *et al.* (2021) who found that, the variable "Workshop is large enough for trainees" positively influences the quality of training provision in TVET schools by creating a safe, accessible, and versatile learning environment that supports effective teaching, collaborative learning, and the development of practical skills, essential for success in the workforce.

The study findings presented in table 4.8 also revealed that the variable " Practices in workshop help internalize practical skills", positively influenced the quality training provision in TVET schools and is statistically significant at 5% level of significance. The positive correlation between physical facilities and practices in workshop help internalize practical skills implies that there is positive contribution in several ways like application of theoretical knowledge. Workshop practices bridge the gap between theoretical knowledge and its practical application. Trainees can apply concepts learned in the class to real-world situations, gaining a deeper understanding on how theoretical principles translate into tangible skills. The findings now are coherent with the study conducted by Ochieng and Ngware (2022) who found that the practices in workshop help internalize practical skills positively influences the quality training provision in TVET schools by fostering hands-on learning, skill mastery, problem-solving abilities, and confidence among trainees. Regular practice in the workshop enhances the overall effectiveness of technical and vocational education, preparing trainees for successful entry into their chosen industries.

The study findings presented in table 4.8 showed that the variable "Workshop is accessible" positively influenced quality training provision in TVET schools and was statistically significant at 5% level of significance. This implies that if a" Workshop is accessible", it refers and reflects the availability and easy access to workshops. Accessible workshops provide students with more opportunities for hands-on learning and this practical experience is crucial in TVET programs, as it allows trainees to apply theoretical knowledge in a real-world setting. The research findings are

supported by the results of Adams (2019) who reaffirmed that, "Workshop is accessible" implies easy access to practical training facilities, hence it positively influences the quality training provision in TVET schools by promoting hands-on learning, skill development, enhanced learning experiences, application of theoretical knowledge, effective workforce preparation, and increased student engagement and motivation.

The study findings presented in table 4.8 also indicated that the variable " Equipment help to acquire employable skills" positively influenced the quality training provision in TVET schools and was statistically significant at 5% level of significance. The positive relationship between physical facilities and equipment help to acquire employable skills, implies that there is an increase of industry-relevant learning of the trainees in the TVET schools. Well-equipped TVET schools can offer training programs that align with the latest industry trends and technological advancements. This ensures that trainees are exposed to the tools and equipment they are likely to encounter in their future careers, making them more competitive and employable; and the findings are coherent with the research conducted by Okumu and Kenei (2023), who found that there is a positive influence of "Equipment helps to acquire employable skills" on the quality training provision in TVET schools to facilitate practical skill development, enable real-world application, provide industry-relevant training, ensure efficient skill transfer, boost confidence, and enhance overall employability.

The study findings presented in table 4.8 revealed that the variable " Trainees learn better through practices"positivelyinfluenced the quality training provision in TVET schools and was statistically significant at 5% level of significance and there is a positive implication that there is skill development for the trainees. Practices allow trainees to develop and own their practical skills. Skills acquisition is a fundamental aspect of vocational and technical education, and enhances the trainees' proficiency in applying theoretical concepts to actual tasks they will encounter in their future careers; and hence, the results are supported by the research conducted by Kintu *et al.* (2019) who revealed that the positive influence of the variable "Trainees learn better through practices" on the quality of training provision in TVET schools, it lies in its ability to promote hands-on learning, skill development, problem-solving abilities, knowledge retention, application of

theoretical knowledge, real-world simulation, increased engagement and motivation, and effective preparation for the future workplace.

The study findings presented in table 4.8 showed that the variable " Poor workshop hampers skills acquisition" negatively influenced the quality training provision in TVET schools and is statistically significant at 5% level of significance. The negative correlation between physical facilities and Poor workshop hampers skills acquisition, implies that a poorly equipped or inadequate workshop may not dispose the necessary tools, equipment, or materials for trainees to engage in practical and hands-on learning. Limited access to hands-on practice hampers the development of practical skills and the latter is a fundamental aspect in vocational and technical education; thus the results are coherent with the research conducted by Wausi (2018) who found that a poor workshop environment in TVET schools can hamper skills acquisition by limiting hands-on practice, providing outdated equipment, posing safety concerns, offering inadequate supervision, restricting exposure to industry practices, reducing motivation and engagement, and limiting collaboration opportunities. To ensure effective skills development, it is essential to invest in well-equipped and well-maintained workshop facilities that meet industry standards and provide a conducive learning environment for trainees.

The study findings presented in table 4.8 showed that the variable " Adequate Learning facilities maintain motivation in acquiring skills" and positively influenced quality training provision in TVET schools and was statistically significant at 5% level of significance. The positive relationship indicates that there is an enhanced learning environment for trainees.Well-equipped and modern facilities create a positive and conducive learning environment. This includes having up-to-date workshops, laboratories, and classrooms with the necessary tools, equipment, and technology. A clean, organized, and stimulating environment enhances the overall learning experience, making it more enjoyable and motivating learners. Thus, the findings are in line with the research conducted by Mumbe (2020) who concluded that "adequate learning facilities in TVET schools create a positive, relevant, and supportive environment that maintains the motivation of trainees". By providing the necessary tools, technology, and infrastructure, these facilities contribute to a well-rounded educational experience that prepares trainees for successful careers in their chosen vocational and technical fields.

The study findings presented in table 4.8 showed that the variable " Maintenance and Repair of tools and equipment"positivelyinfluenced the quality training provision in TVET schools and was statistically significant at 5% level of significance. The research indicated that there is an enhanced learning environment for trainees when maintenance and repair of tools and equipment timely occurs. The positive correlation between two variables indicates that once this is performed, they can prevent disruptions in trainings for trainees and promotes longevity of equipments in the workshop. Regular maintenance minimizes the likelihood of unexpected breakdowns or malfunctions during training sessions. This preventive approach helps avoid disruptions in the training schedule, ensuring that trainees can progress smoothly through their coursework without unnecessary delays; while on side of longevity of the equipments, proper maintenance extends the lifespan of tools and equipment. This is less cost-effective for educational TVET institutions as it reduces the frequency of equipment replacement. A well-maintained workshop can continue to provide quality training for an extended period, benefiting multiple cohorts of trainees. Thus; the findings are supported by the research conducted byRwamu (2019) and Fatma (2017) who confirmed that he maintenance and repair of tools and equipment in the workshop positively influence the quality of training provision in TVET schools by ensuring safety, optimizing performance, preventing disruptions, promoting longevity, facilitating a consistent learning experience, enhancing equipment availability, and teaching proper maintenance practices for future cohorts of trainees.

4.4.2 Trainers' views on the influence of physical facilities on quality training provision

Multiple linear regression analysis involves measuring relationships between one or more independents variables to assess whether there is a change in the predicted variable once the explanatory variables evolve. This research examined the influence of physical facilities on the quality training provision in TVET schools, the results typically include several key components, as depicted in table 4.9. The coefficient for each independent variable, indicating the strength and direction of the relationship. Positive coefficients suggest a positive impact on the dependent variable, while negative coefficients suggest a negative impact. P-values associated with each coefficienthelps to determine the statistical significance of each variable. Lower p-values (typically < 0.05) indicate greater significance at 95% confidence interval.

As mentioned in the summary of the table 4.9, the computed R-squared was 0.1697; and to respond to the first objective and its research question, the study found that physical facilities' influence on quality training provision in TVET school showed a moderate correlation between predicted and explanatory variables of R^2=0.1697, thus; physical facilities enhanced quality training provision in TVET schools by 16.9%. It implies that a16.9% R-squared indicates that physical facilities, such as workshops, classrooms, tools and equipments, etc.., collectively account 16.9% while the remaining 83.1% of the variation in quality training provision remain unexplained, which could be due to other factors not measured by the study.

Table 4.9: Regression analysis results for trainers

A. Availability of Physical Facilities	Coef.	Std. Err.	t	P>|t|
Most of trainings take place in workshop	0.1454	0.0880	1.65	0.006
Workshops are adequately equipped with materials	0.1005	0.1171	0.86	0.021
Variety of materials are available according to trade	0.0449	0.1074	0.42	0.037
Employable skills are taught through various equipment	0.1270	0.1137	1.12	0.014
Workshops are large enough	0.1448	0.0746	1.94	0.003
Learning materials help students to learn well	0.0057	0.0838	0.07	0.050
Workshops are accessible for all students	0.0425	0.0849	0.5	0.033
Use of Library	0.0694	0.0461	1.51	0.007
Use of computer Lab.	0.0085	0.0626	0.14	0.048
_cons	0.4389	0.3206	1.37	0.009
Number of obs = 131, F(9,121) = 2.75, Prob > F= 0.0059, R-squared (R^2)= 0.1697, Adj R-squared (Adj. R^2)= 0.1079and Root MSE= 0.45877				

The study findings presented in the table 4.9 revealed that the variable " Most of trainings take place in workshop", positively influenced the quality training provision in TVET schools and is statistically significant at 5% level of significance. The positive relationship between physical facilities and most of trainings taking place in workshop implies that there is an improved skill development. TVET schools require practical application; and a workshop setting provides the necessary space and resources for students to develop these skills effectively; hence the results agree with the findings of Fufa and Kimo (2019) who concluded that practical training in workshops aligns with industry demands, making students more employable and ready for the

workforce. Employers often value hands-on experience, and students who have undergone such training may have a competitive advantage at labor market.

The study findings presented in table 4.9 showed that the variable " Workshops are adequately equipped with materials", positively influences the quality training provision in TVET schools and was statistically significant at 5% level of significance. The positive relationship between physical facilities and workshops are adequately equipped with materialsimplies that there are sufficient tools, machinery, and resources needed for hands-on training in TVET workshops. This suggests that, on p-value average; a one-unit increase in the adequacy of workshop materials is associated with a 0.1005 unit increase in the quality of training provision, assuming all other variables are held constant and the p-value of 0.021 is less than the commonly used significance level of 0.05. This indicates that the coefficient for "Workshops Adequately Equipped with Materials" is statistically significant. Given the results, the research concludes that there is a statistical significant positive effect of workshops being adequately equipped with materials on the quality of training provision in TVET schools. Thus; the results agree with the research conducted by Abdulkadir *et al.* (2021) and argued that available facilities encourage, stimulate, and promote teaching and and learning in TVET schools.

The study findings presented in table 4.9 showed that the variable " Variety of materials are available according to trade", positively influences the quality training provision in TVET schools and was statistically significant at 5% level of significance. On average, a one-unit increase in the variety of materials available according to trade is associated with a 0.0449-unit increase in the quality of training provision in TVET schools, holding other factors constant." The results suggest that having a greater variety of materials available according to trade is associated with a statistical significant positive impact on the quality of training provision in TVET schools, and thus the findings are in line with the research conducted by Abdulkadir *et al.* (2021) arguing that instructional resources need to be adequately available and utilized effectively in the teaching-learning process.

The study findings presented in table 4.11 showed that the variable " Employable skills are taught through various equipment", positively influences the quality training provision in TVET schools

and was statistically significant at 5% level of significance. The positive relationship between two variables implies that "Employable skills taught through various equipment" suggests that, on average, a one-unit increase in the presence of employable skills taught through various equipment is associated with a 0.1270 unit increase in the quality of training provision in TVET schools. With a coefficient of 0.1270 and a p-value of 0.014, there is evidence to support the idea that the presence of employable skills taught through various equipment has a statistical significant positive effect on the quality of training provision in TVET schools; thus the findings are in line with the research conducted by Mathaba (2023) argued that teaching employable skills through various equipment in TVET schools enhances the quality of training, as it aligns students with labour market industry standards.

The study findings presented in table 4.9 showed that the variable " Workshops are large enough", positively influences the quality training provision in TVET schools and was statistically significant at 5% level of significance. The positive relationship between two variables implies that " Workshops are large enough " suggests that the positive coefficient indicates that there is a positive relationship between the size of workshops and the quality of training provision. In practical terms, larger workshop is associated with better-quality training provision, according to the model. In this case, a coefficient of 0.1448 suggests that, on average, a one-unit increase in the size of workshops is associated with a 0.1448 unit increase in the quality of training provision in TVET schools. With a coefficient of 0.1448 and a p-value of 0.003, there is evidence to support the idea that the size of workshops has a statisticalsignificant positive effect on the quality of training provision in TVET schools. The change in the increase on dependent variable willindicate that the quality of training provision is not likely due to random chance, rather independent variable. Larger workshops may contribute positively to the overall learning environment and effectiveness of training programs in TVET schools, thus the study findings are in agreement with the research conducted by Ojera *et al.* (2021) who found that having adequately sized workshops may contribute positively to the overall effectiveness of training programs, potentially providing students with better learning environments and resources for hands-on experiences in their respective fields.

The study findings presented in table 4.9 showed that the variable " Learning materials help students to learn well", positively influences the quality training provision in TVET schools and was statistically significant at 5% level of significance. The positive coefficient indicates a positive relationship between dependent and independent variables, implying that an improvement in the effectiveness or availability of learning materials is associated with a slight increase in the quality of training provision. In this case, a coefficient of 0.0057 suggests that, on average, a one-unit increase in the effectiveness or presence of learning materials is associated with a 0.0057 unit increase in the quality of training provision in TVET schools. A p-value of 0.050 is at the conventional significance level of 0.05. This borderline p-value suggests that the observed relationship between the effectiveness of learning materials and the quality of training provision is significant. Hence, these results are in line with the research conducted by Ongulu and Ibrahim (2021) who found that there is positive effect of learning materials on quality training provision through enhancement of understanding, support hands-on learning, and alignment with industry standards.

The study findings presented in table 4.9 showed that the variable " Workshops are accessible for all students", positively influences the quality training provision in TVET schools and was statistically significant at 5% level of significance. The positive coefficient indicates a positive relationship between dependent and independent variables, and implies that, a coefficient of 0.0425 suggests that, on average, a one-unit increase in the accessibility of workshops for all students is associated with a 0.0425 unit increase in the quality of training provision in TVET schools. The positive coefficient indicates a positive relationship, suggesting that an improvement in the accessibility of workshops for all students is associated with a slight increase in the quality of training provision. The p-value of 0.033 less than to conventional level of significance of 0.05 suggests that the relationship between the accessibility of workshops for all students and the quality of training provision is statistically significant. Thus, the study findings are coherent with the research conducted by Villarroel *et al.* (2020) who concluded that access to workshops facilitate experiential learning, enabling students to learn by doing. Through, hands-on experiences, students gain a deeper understanding of the subject matter and develop problem-solving skills and such graduates who have had ample exposure to workshop environment are more likely to transition seamlessly into their chosen professions.

The study findings presented in table 4.9 showed that the variable " Use of Library", positively influences the quality training provision in TVET schools and was statistically significant at 5% level of significance. The positive coefficient indicates a positive relationship between dependent and independent variablesimplies that there is availability of resources ensuring that students and instructors have access to up-to-date and relevant information to support their coursework and training and use of library encourages independent learning. Students can explore resources on their own, conduct research, and deepen their understanding of theoretical concepts, by providing a wealth of resources, fostering independent learning, supporting research skills development.
Based on the findings from regression analysis, the research indicated that a coefficient of 0.0694 suggests, on average, a one-unit increase in the use of the library is associated with a 0.0694 unit increase in the quality of training provision in TVET schools; and the positive coefficient indicates a positive relationship between dependent and independent variables, and suggests that an improvement in the use of the library is associated with an increase in the quality of training provision. As well it was found that a p-value of 0.007 confirms the relationship between the use of the library and the quality training provision is statistically significant. Hence, these findings agree with research findings of Sisay (2023) who affirmed that students utilizing library resources, engaging in independent learning, and accessing a variety of materials may experience a more enriched and effective technical education aligned with industry standards.

The study findings presented in table 4.9 showed that the variable " Use of computer Lab.", positively influences the quality training provision in TVET schools and was statistically significant at 5% level of significance. The positive coefficient indicates a positive relationship between dependent and independent variables and implies that there is familiarity with emerging technologies which is crucial driver for staying competitive in the job market. In this case, a coefficient of 0.0085 suggests that, on average, a one-unit increase in the use of computer labs is associated with a 0.0085 unit increase in the quality of training provision in TVET schools. The positive coefficient indicates a positive relationship, suggesting that an improvement in the use of computer labs is associated with an increase in the quality of training provision. he p-value associated with the coefficient is used to test the null hypothesis that the coefficient is equal to zero (no effect). It was found that also a p-value of 0.048 is less than the conventional significance level

of 0.05, suggesting that the observed relationship between the use of computer labs and the quality training provision is statistically significant. Hence, the findings are in line with the research conducted by Camba *et al.* (2023) who confirmed that integration of ICT tools in TVET schools enables traines to create and modify structural designs efficiently. The use of computer Lab. allows for precise and detailed drawings, reducing the time and effort required for manual drafting.

4.5 Influence of Continuous Professional Development on quality training provision

4.5.1 Trainers' views on the influence of CPD on quality training provision

Multiple linear regression analysis involves measuring relationships between one or more independents variables to assess whether there is a change in the predicted variable once the explanatory variables evolve. The research examined the influence of continuous professional development on quality training provision in TVET schools, the results typically include several key components, as depicted in table 4.10. The coefficient for each independent variable, indicating the strength and direction of the relationship. Positive coefficients suggest positive impact on the dependent variable, while negative coefficients suggest negative impact. P-values associated with each coefficient help to determine the statistical significance of each variable. Lower p-values (typically < 0.05) indicate greater significance at 95% confidence interval.

As mentioned in the summary of the table 4.10, the computed R-squared was 0.1381; and to respond to the second objective and its research question, the study found that continuous professional development' influence on quality training provision in TVET school showed a moderate correlation between predicted and explanatory variables of R^2=0.1381, thus; physical facilities enhanced quality training provision in TVET schools by 13.8%. It implies that a13.8% R-squared shows that CPD factors, such as new pedagogical practices, new teaching methods, engage in lifelong learning, educational changes, updates to subject knowledgeetc.., collectively account 13.8% while the remaining 86.2% of the variation in quality training provision is unexplained, which could be due to other factors not measured by the study.

Table 4.10: CPD results by regression model for trainers

Continuous Professional Development	Coef.	Std. Err.	t	P>|t|
Trainers attend continuous professional development regularly	0.0288	0.0832	0.35	0.044
CPD helps trainers to improve training practices	0.1034	0.1797	0.58	0.034
CPD covers all subjects taught in a trade	0.0506	0.0714	0.71	0.029
CPD provides opportunities to reflect on training practices	0.0109	0.1604	0.07	0.047
Through CPD pedagogical practices be upheld	0.0226	0.1243	0.18	0.042
New teaching methods are shared and acquired through CPD	0.0128	0.1740	0.07	0.013
CPD provides strategies for learning environment's management	0.1172	0.1581	0.74	0.028
CPD helps trainers to widen and transfer skills	0.1415	0.1829	0.77	0.027
CPD improves student's outcomes	0.0504	0.2083	0.24	0.049
CPD engages in Lifelong Learning	0.1121	0.1033	1.09	0.017
CPD adapts to educational changes	0.0446	0.2619	0.17	0.032
CPD updates subject knowledge	0.2073	0.1071	1.94	0.003
_cons	0.6206	0.2601	2.39	0.001
Number of obs = 135, F(12, 122) =1.63, Prob > F= 0.0918, R-squared (R^2)= 0.1381, Adj R-squared (Adj. R^2)= 0.0534and Root MSE=0.48115				

The findings presented in the table 4.10 showed that the variable " Trainers attend continuous professional development regularly", positively influenced the quality training provision in TVET schools and was significant at 5% level of significance. The positive influence between trainers attending continuous professional development regularlyand quality training provision implies that there is an enhanced teaching effectiveness and up-to-date subject knowledge. The coefficient 0.0288 indicates a positive relationship between predicted and independent variables. Subsequently, an increase in the frequency of trainers attending continuous professional development is associated with an increase in the quality of training provision and it suggests that, on average, for each additional unit increase in the frequency of trainers attending CPD, the quality of training provision is expected to increase by 0.0288 units. As well it was found that a p-value of 0.044 confirms the relationship between the trainers attending continuous professional development regularly and the quality training provision is statistically significant at 5% level of significance. Hence, these findings agree with research findings of HARUNAVAMWE and

MNQAYI (2021) who affirmed that CPD sessions have a very positive effect on the performance of trainers, as they considered it as a crucial aspect in developing their knowledge, skills and attitudes.

The study findings presented in the table 4.10 showed that the variable " CPD helping trainers to improve training practices", positively influenced the quality training provision in TVET schools and was statistically significant at 5% level of significance. The positive relationship between CPD helping trainers to improve training practices and quality training provision implies that there is enhanced pedagogical skills and up-to-date subject knowledge. The coefficient 0.1034 shows a positive relationship between dependent and independent variables. Subsequently, an increase of coefficient 0.1034 suggests that, on average, for each additional unit increase in the benefittedCPD to improve training practices, hence the quality training provision is expected to increase by 0.1034 units. As well it emerged that a p-value of 0.034 is statistically significant at 5% level of significance. Hence, these findings correlate to the research findings of Leong and Rethinasamy (2023) who affirmed that CPD programs have a very positive effect on the performance of trainers, as it develops their knowledge, skills and attitudes.

The results in the table 4.10 showed that the variable " CPD covers all subjects taught in a trade", positively influenced the quality training provision in TVET schools and was significant at 5% level of significance. The positive correlation between CPD covers all subjects taught in a trade and quality training provision implies that CPD covers all subjects and ensures that trainers receive training in a wide range of topics related to the trade.The coefficient 0.0506 shows a positive relationship between dependent and independent variables. Subsequently, an increase of coefficient 0.0506 suggests that, on average, for each additional unit increase in the extent of CPD coverage, the quality of training provision is expected to increase by 0.0506 units. As well it emerged that a p-value of 0.029 is statistically significant at 5% level of significance. Hence, the results are coherenr with the research done by Antonio (2020) confirmed that CPD covers all subjects taught in a trade is responsive to the diverse needs of trainers and aims to create an environment where trainers from various backgrounds, experiences, and abilities can engage and benefit effectively.

The results in the table 4.10 showed that the variable “CPD provides opportunities to reflect on training practices”, positively influenced the quality training provision in TVET schools and was significant at 5% level of significance. The positive relationship between CPD provides opportunities to reflect on training practices and quality training provision implies that CPD provides opportunities to reflect on training practicesallows trainers to identify areas of strength and areas that need improvement. The coefficient 0.0109 shows a positive relationship between dependent and independent variables. Subsequently, an increase of coefficient 0.0109 suggests that, on average, for each additional unit increase in the extent of CPD providing opportunities for reflection, the quality of training provision is expected to increase by 0.0109 units. As well it emerged that a p-value of 0.047 is statistically significant at 5% level of significance. Hence, the findings are in line with the research conducted Radó (2020) argued that CPD provides opportunities to reflect on training practices and prompts educators to critically examine their instructional methods.

The results in in the table 4.10 showed that the variable “ Through CPD pedagogical practices be upheld”, positively influenced the quality training provision in TVET schools and was significant at 5% level of significance. The positive correlation between “Through CPD pedagogical practices be upheld” and quality training provision implies that Through CPD pedagogical practices be upheld plays a crucial role in upholding and enhancing pedagogical practices among educators. The coefficient 0.0226 shows a positive correlation between predicted and independent variables. Subsequently, an increase of coefficient 0.0226 suggests that, on average, for each additional unit increase in the extent of CPD upholding pedagogical practices, the quality of training provision is expected to increase by 0.0226 units. As well it emerged that a p-value of 0.042is statistically significant at 5% level of significance. Hence, the findings are in line with the research conducted by Somantri and Iskandar (2021) affirmed that CPD upholding pedagogical practices allows educators to stay informed about the latest educational trends.

The results in the table 4.10 showed that the variable “ New teaching methods are shared and acquired through CPD”, positively influenced the quality training provision in TVET schools and was significant at 5% level of significance. It implies CPD promotes a culture of continuous improvement among educators and allows them to adapt their instructional approaches to meet the

changing needs of students. The coefficient 0.0128 shows a positive influence between predicted and independent variables. Subsequently, in this case, the coefficient of 0.0128 suggests that, on average, a one-unit increase in CPD is associated with a 0.0128 unit increase in quality training provision. As well it emerged that a p-value of 0.013 is statistically significant at 5% level of significance. Hence, the findings are in line with the research conducted by Beard and Wilson (2018) and Alam (2022) affirmed that new teaching methods shared and acquired through CPD includes trainer guided, individualized learning, experiential learning and cooperative learning methods.

The results in the table 4.10 showed that the variable " CPD provides strategies for learning environment's management", positively influenced the quality training provision in TVET schools and was significant at 5% level of significance. CPD highlights on number of points; on this it develops classroom rules and collaboratively allows to establish a set of classroom rules with students, positive reinforcement, on this it positively reinforces, and allows to recognize and reward desirable behavior; clear and organized physical space, as well it allows to ensure that the physical space is well-organized, with clearly designated areas for different activities. As a tidy and inviting environment can positively impact students' focus and behavior; use of visual aids, on this CPD allows duly incorporation visual aids such as charts, posters, and diagrams to support understanding; effective time management, on this CPD efficiently allows to manage instructional time, to maximize learning opportunities with planned lessons with clear objectives and time allocated appropriately; conflict resolution strategies, on this CPD arms trainers on how to help students in conflict resolution strategies to resolve disagreements in a constructive and respectful manner.

The positive coefficient 0.0128 suggests a positive relationship between the strategies for learning environment's management and the quality of training provision. As the strategies for learning environment's management increase by one unit, the quality of training provision is expected to increase by 0.0128 units, assuming other factors remain constant and as well it emerged that a p-value of 0.028 is statistically significant at 5% level of significance. Hence, the findings are in line with the research conducted by Alemayehu (2021) and Closs *et al.* (2022) affirmed that teaching and learning environments involving physical, pedagogical, and psychosocial dimensions influence students' learning outcomes.

The results in the table 4.10 showed that the variable " CPD helps trainers to widen and transfer skills", positively influenced the quality training provision in TVET schools and was significant at 5% level of significance; on widening and skills transfer, trainers with a broader skill set are likely to bring more diverse methodologies to their training sessions; and on skill transfer, trainers able to transfer their skills effectively are better equipped to adapt and tailor their approaches to meet specific requirements. The positive coefficient of 0.0128 suggests that, on average, a one-unit increase in CPD is associated with a 0.1415-unit increase in the quality of training provision and as well it emerged that a p-value of 0.027 is statistically significant at 5% level of significance. Hence, the findings are in line with the research conducted by Luhanga *et al.* (2022) affirmed that the process of skill transfer, CPD stipulates that, CPD providers need to consider a range of factors including participant characteristics, instructional design, and participants' work environments.

The results in the table 4.10 showed that the variable " CPD improves student's outcomes", positively influenced the quality training provision in TVET schools and was significant at 5% level of significance. It implies that CPD enhances teaching competence**,** through CPD teachers are enhancing their teaching competence resulting in improved student outcomes; tailoring instruction to student needs, on this CPD suggests that trainers are better able to tailor their instruction to meet individual trainees needs.A positive coefficient of 0.0504 suggests that, on average, a one-unit increase in CPD is associated with a 0.0504-unit increase in the predicted outcome (e.g., quality of training provision) and andas well it emerged that a p-value of 0.049 is statistically significant at 5% level of significance. Hence, the findings are in line with the research conducted by Holloway (2006) affirmed that the right kinds of professional development for both trainers and school leaders can directly contribute to improved trainees performance.

The findings in the table 4.10 showed that the variable " CPD engages in Lifelong Learning", positively influenced the quality training provision in TVET schools and was statistically significant at 5% level of significance. It signifies that lifelong learning refers to a commitment to continuous growth, to adaptability to change, to evolving work environments, and to personal and professional development throughout one's entire career.The positive coefficient suggests that, on average, a one-unit increase in CPD engagement in lifelong learning is associated with a 0.1121-unit increase in the predicted quality of training provisionandas well it emerged that a p-value of 0.017 is statistically significant at 5% level of significance. Hence, the findings are in line with

the research conducted by Kaplan (2016) affirmed that the lifelong learning refers to shaping one's skills and knowledge based on occupational education, coherence needs and employment.

The results in the table 4.10 showed that the variable " CPD adapts to educational changes", positively influenced the quality training provision in TVET schools and was statistically significant at 5% level of significance. It implies that the variable allows the alignment with current educational practices; on this itensures that trainers stay aligned with current best practices, pedagogical approaches, and technological advancements, and the variable CPD adapts to educational changes as educational regulations and standards boards may undergo changes over time, and CPD helps trainers stay compliant with regulatory requirements, ensuring that the training provided meets the necessary standards and qualifications.The positive coefficient implies that, on average, a one-unit increase in the adaptation of CPD to educational changes is associated with a 0.0446 unit increase in the predicted quality of training provisionandas well it emerged that a p-value of 0.032 is statistically significant at 5% level of significance. Hence, the findings are in line with the research conducted by Holliman (2019) argues that adaptation, adjustment of one's thoughts, feelings, and behaviours, attitudes in response to changing this holistic situation is an important capacity for thriving able and effective educators.

The results in the table 4.10 showed that the variable " CPD updates subject knowledge", positively influenced the quality training provision in TVET schools and was significant at 5% level of significance. It implies that the variable highlights a number of points; relevance to industry trends, on this CPD allows regular updates to subject knowledge, allows trainers to align their training content with current industry trends; adaptation to changes in curriculum, on this CPD allows to update curricula subject knowledge, it allows trainers to adapt materials, methods, to align with changes in curriculum standards ensuring that training remains in harmony with educational requirements; preventing knowledge obsolescence, on this CPD prevents trainers' knowledge from becoming outdated and remain relevant with accurate information. The positive coefficient suggests that, on average, a one-unit increase in the extent to which CPD updates subject knowledge is associated with a 0.2073-unit increase in the predicted quality of training provision and as well it emerged that a p-value of 0.003 is statistically significant at 5% level of significance. Hence, the findings are in line with the research conducted by Evans *et al.* (2008) argues that a

teaching staff in schools ought to have required up-to-date subject knowledge and skills for this enhanced role.

4.6.Trainers' views on the influence of quality assurance on quality training provision

Multiple linear regression analysis involves measuring relationships between one or more independents variables to assess whether there is a change in the predicted variable once the explanatory variables evolve. The research examined the influence of quality assurance on quality training provision in TVET schools, the results typically include several key components, as depicted in table 4.11. The coefficient for each independent variable, indicating the strength and direction of the relationship. Positive coefficients reflects positive impact on the dependent variable, while negative coefficients reflects negative impact. P-values associated with each coefficient help to determine the statistical significance of each variable. Lower p-values typically < 0.05 indicate greater significance at 95% confidence interval.

As mentioned in the summary of the table 4.11, the computed R-squared was 0.1795; and to respond to the third objective and its research question, the study found that the quality assurance influence on quality training provision in TVET school showed a moderate correlation between predicted and explanatory variables of $R^2=0.1795$, thus; quality assurance enhanced quality training provision in TVET schools by 17.9%. It implies that a17.9% R-squared shows that quality assurance factors, such as improved workshops, acquisition of practical skills, curriculum implementation, training with labor market needs, stakeholder engagement and participation, timely assessment and evaluation, standards and Guidelines etc.., collectively account 17.9%, while the remaining 82.1% of the variation in quality training provision remain unexplained, which could be due to other factors not measured by the study.

Table 4.11: Quality assurance results by regression model for trainers

Variables	Coef.	Std. Err.	t	P>|t|
Advice from quality assurance help in improving training practice	0.2226	0.1540	1.45	0.009
Quality assurance oversees the quality of training provision	0.1588	0.1339	1.19	0.014
Quality assurance helps in improving workshops	0.1892	0.1530	1.24	0.013
Learning environment is ameliorated through quality assurance	0.1201	0.1338	0.9	0.023
Acquisition of practical skills are improved through quality assurance	0.0736	0.1549	0.47	0.039
Quality assurance ensures that curriculum is implemented effectively	0.2157	0.1082	1.99	0.003
Quality assurance ensure that training provision is labor market – oriented	0.1329	0.1136	1.17	0.015
Quality of learning facilities are improved through quality assurance	0.0086	0.0956	0.09	0.056
Quality assurance ensures stakeholder engagement and participation	0.0455	0.1011	0.45	0.040
Quality assurance ensures timely assessment and evaluation	0.0863	0.0939	0.92	0.022
Quality assurance ensures standards and Guidelines	0.0784	0.1214	0.65	0.032
_cons	0.8116	0.2061	3.94	0.000
Number of obs = 119, F(11, 107) = 2.13, Prob > F =0.0241, R-squared (R^2)= 0.1795, Adj R-squared (Adj. R^2)= 0.0951and Root MSE=0.45396				

The findings in the table 4.11 showed that the variable " Advice from quality assurance help in improving training practice", positively influenced the quality training provision in TVET schools and was significant at 5% level of significance. The implication of seeking advice from quality assurance on training practice is a holistic approach to ensure that training programs are of the highest quality, align with standards, meet learner needs, and undergo continuous improvement. In this case, the positive coefficient (0.2226) implies that, on average, an increase in the level of advice from quality assurance is associated with an increase in the quality of training provision and the p-value of 0.009 is less than the common significance level of 0.05, suggesting that the coefficient is statistically significant. Hence, the findings are in line with the research conducted by Ochuba *et al.* (2024)argues that Quality assurance relies on outside auditors coming inside a business or organisation to evaluate how well it is doing.

The study findings presented in the table 4.11 showed that the variable " Quality assurance oversees the quality of training provision", positively influenced the quality training provision in TVET schools and was significant at 5% level of significance. Implications of quality assurance are particularly crucial due to the practical and skills-oriented nature of TVET programs for competent and employable graduates. In this case, the positive coefficient 0.1588 suggests that, on average, an increase in the level of advice from quality assurance is associated with an increase in the quality of training provision. The p-value of 0.014 is less than the common significance level of 0.05, suggesting that the coefficient is statistically significant. Hence, the findings are in line with the research conducted by Ndukwe and Allen (2018) argues that quality assurance partly refers to monitoring performance and to ensuring achievement of quality outputs or improved quality and on the other side, it is the systematic management and assessment procedures in TVET schools.

The study findings presented in the table 4.11 showed that the variable " Quality assurance helps in improving workshops", positively influenced the quality training provision in TVET schools and was statistically significant at 5% level of significance. It signifies that quality assurance helps in the efficient use of workshop resources, including tools, equipment, and materials and it ensures that workshops are well-equipped, and resources are utilized effectively for hands-on learning experiences. In this case, the positive coefficient 0.1892 suggests that, on average, an increase in the level of quality assurance in workshops is associated with an increase in the quality of training provision and the p-value of 0.013 is less than the common significance level of 0.05, suggesting that the coefficient is statistically significant. Thus, the results are coherent with the study conducted by Gebremeskel (2019) argues that equipped workshop, adequate equipment and training materials as well as the time for practical exercise for trainees need meet the standards besides the competence of teachers .

The results in the table 4.11 indicate that the variable " Learning environment is ameliorated through quality assurance", positively influenced the quality training provision in TVET schools and was positively significant at 5% level of significance. The implication is that quality assurance as advisory board contributes to the creation of a positive and conducive learning environment and this includes well-designed classrooms, workshops, and laboratories that support effective

teaching and learning. In this case, the positive coefficient 0.1201 suggests that, on average, an increase in the level of quality assurance in workshops is associated with an increase in the quality of training provision and the p-value of 0.013 is less than the common significance level of 0.05, suggesting that the coefficient is statistically significant. Hence, the findings are supported with the research conducted by Ayeni and Adelabu (2012) affirmed that a good school environment is where good working facilities exist, is a catalyst for effective teaching and learning and reinforces the efforts of the trainers by providing a good stimulus for effective teaching and learning to take place.

The results in the table 4.11 indicate that the variable " Acquisition of practical skills are improved through quality assurance", positively influenced the quality training provision in TVET schools and was positively significant at 5% level of significance. The implication is quality assurance contributes to the enhanced employability of TVET graduates, emphasizing on hands-on acquisition and practical learning experiences. In this case, the positive coefficient 0.0736 suggests that, on average, an increase in the level of acquisition of practical skills through quality assurance is associated with an increase in the quality of training provision and the p-value of 0.039 is less than the common significance level of 0.05, suggesting that the coefficient is statistically significant, hence the study correlates with the research findings of John and Yusri (2021) argues that the ultimate key concern of quality assurance arrangement in technical vocational education and training is to enhance skills acquisition, promoting self employment and technological development for employableand competent graduates.

The results in the table 4.11 shows that the variable " Quality assurance ensures that curriculum is implemented effectively" positively influenced the quality training provision in TVET schools and was significant at 5% level of significance. The implication is that quality assurance ensures a consistent and standardized delivery of the curriculum across different TVET institutions. This consistency ensures that trainees receive similar educational experiences regardless of the institution they attend. The findings from regression analysis show that, he positive coefficient 0.2157 suggests that, on average, an increase in the level of curriculum implementation through quality assurance is associated with an increase in the quality of training provision and the p-value of 0.003 is less than the common significance level of 0.05, suggesting that the coefficient is

statistically significant, hence the study correlates with the research findings of Chepkuto (2012) argues that the ultimate affirmed that the core function of the directorate of quality assurance and standards is ensuring quality education that entails monitoring of curriculum implementation in schools.

The results depicted in table 4.11 reveal that the variable " Quality assurance ensures that training provision is labor market-oriented" positively influenced the quality training provision in TVET schools and was significant at 5% level of significance. The implication is that labor market-oriented training increases the employability of TVET graduates. Students are equipped with practical skills and competencies that directly match the requirements of industries. In this case, the positive coefficient 0.1329 suggests that, on average, an increase in the level of labor market-oriented training provision through quality assurance is associated with an increase in the quality of training provision and the p-value of 0.015 is less than the common significance level of 0.05, suggesting that the coefficient is statistically significant. Thus, the findings are in line with the research conducted by Sekerin *et al.* (2018) found that labor market gap exhibits the main ideas of practice-oriented educational requirements, as education is oriented not on processes but on measurable educational outcomes, reflecting not only economic, but much broader labor market needs.

The results presented in table 4.11 reveal that the variable " Quality of learning facilities are improved through quality assurance", positively influenced the quality training provision in TVET schools and was significant at 5% level of significance. On this, the implication is quality assurance insists on the creation of a conducive, and up-to-date learning environment that supports effective teaching and enhances the overall educational experience for students in TVET schools; well-maintained classrooms, laboratories, and workshops positively impact the overall atmosphere of the institution. In this regards, the positive coefficient 0.0086 suggests that, on average, an increase in the level of improved quality of learning facilities through quality assurance is associated with an increase in the quality of training provision and the p-value of 0.056 is above the common significance level of 0.05, suggesting a marginally significant relationship.Thus, the findings are in line with the research conducted by Mormah (2023) affirms that a quality school physical facility invariably affects students, teachers and the learning environment in varying ways and the

management and maintenance of learning facilities are ladders for climbing and achieving quality training provision.

The results presented in table 4.11show that the variable " Quality assurance ensures stakeholder engagement and participation", positively influenced the quality training provision in TVET schools and was significant at 5% level of significance. On this, the the implication is that the variable "Quality assurance ensures stakeholder engagement and participation" refers to the creation of a collaborative and responsive educational environment that considers the key educational partners and the diverse needs of the school stakeholders, ultimately contributing to the overall quality and effectiveness of TVET programs. In this case, the positive coefficient 0.0455 suggests that, on average, an increase in the level of stakeholder engagement through quality assurance is associated with an increase in the quality of training provision and the p-value of 0.040 is less than the common significance level of 0.05, suggesting that the coefficient is statistically significant. Thus, the findings are in line with the research conducted by Gebremeskel (2019) provides a set of success criteria among others; competence and morale value of teachers, adequate supply and application of material resources, required technology, strong partnership among stakeholders, strong concern for aspiration of students, standardized and relevant occupational standards, duly curriculum implementation, appropriate monitoring and evaluation scheme and strong purposeful leadership are the major criteria of success in TVET schools.

The results presented in table 4.11show that the variable " Quality assurance ensures timely assessment and evaluation" positively influenced the quality training provision in TVET schools and was significant at 5% level of significance. On this, the implication is that the variable refers to a systematic and efficient assessment process that contributes to enhanced learning outcomes, trainees skills recapitulation, and the overall improvement of training programs in TVET schools. In this case, the positive coefficient 0.0863 suggests that, on average, an increase in the level of timely assessment and evaluation through quality assurance is associated with an increase in the quality of training provision and the p-value of 0.022 is less than the common significance level of 0.05, suggesting that the coefficient is statistically significant. Hence, the findings are in line with the research conducted by Yambi (2018) argues that, while the purpose of an evaluation is primarily a summative activity to judge the quality of a performance or work product against a standard at specific points while the fundamental nature of assessment is both formative and

summative processes where the mentor values helping a mentee and is willing to expend the effort to timely provide quality feedback that will enhance the mentee's future performance.

The results presented in table 4.11 show that the variable " Quality assurance ensures standards and Guidelines", positively influenced the quality training provision in TVET schools and was significant at 5% level of significance. On this, the implication is that quality assurance ensures that TVET schools adhere to established standards and guidelines, which areoften set by accrediting bodies and compliance with these standards is mandatory for obtaining and maintaining school accreditation. In this case, the positive coefficient (0.0784) suggests that, on average, an increase in the level of adherence to standards and guidelines through quality assurance is associated with an increase in the quality of training provision and the p-value of 0.032 is less than the common significance level of 0.05, suggesting that the coefficient is statistically significant. Hence, the findings are in line with the research conducted by Karakhanyan and Stensaker (2020) argues that standards and guidelines are measured through Internal Quality Assurance and External Quality Assurance where Internal Quality Assurance refers to the processes and systems implemented within an educational institution to monitor, evaluate, and enhance the quality of its programs and services and involves a self-assessment and self-regulation by the institution itself; while External Quality Assuranceinvolves external entities or agencies that come to assess and verify the quality of educational institutions and programs and these are external entities independent of the institution being evaluated.

To sum up the influence of independents variables on quality training provision in TVET schools, the study measured at what extent physical facilities, continuous professional development and quality assurance influence quality training provision, and the study summed up the R^2 values for each of the measured factors; (29.07% on trainees + 16.74% on trainers) both for physical facilities + (13.74% on trainers CPD) + (17.95% related to trainers' views on quality assurance) = 77.5%. This means that collectively, these three factors; physical facilities, continuous professional development and quality assurance contributed approximately 77.5% with positive variation on the quality of training provided in TVET schools of Rwamagana district, leaving approximately 22.5%of the variation unexplained, which could be due to other factors not measured by the study.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of findings, conclusion and the recommendations made, based on each objective of the study.

5.2 Summary of findings

The study aimed at exploring factors influencing quality training provision in Technical and Vocational Educational and Training schools in Rwamagana district, Rwanda. Specifically, the study intended to determine the extent to which physical facilities influence quality training provision in TVET schools, to invstigate the extent to which Continuous Professional Development for trainers influence quality training provision in TVET schools and to assess the extent to which quality assurance influence quality training provision in TVET schools in Rwamagana district.

The data were collected from 157 trainees, 135 trainers and 10 school managers of the selected TVET schools. The study adopted multistage sampling procedures to select the respondents for the study. Stratified sampling was used to divide the respondents into three stataof trainees, trainers and school managers. Purposive sampling was used to select the key repondents with key information basically school managers. Simple random sampling was used to select respondents and every trainee had equal chance of being selected for the sample; trainers and school managers of the 10 TVET schools were all targeted by the study, the Eastern province, Rwamagana district and the 10 TVET schools were all randomly selected. Descriptive analysis to display the respondents characteristics; frequencies, percentage, mean, standard deviation were used and multiple linear regression model to statistically correlate independent variables with dependent variable was effectively applied. The study specifically based on three objectives:

Extent to which physical facilities influence quality training provision in TVET schools

The study used descriptive analysis and multiple linear regression to determine the extent to which physical facilities influence quality training provision in TVET schools. The results from trainees revealed that factors influencing quality training provision in TVET schools are presence of variety of materials in workshop, trainees carry out practice in workshop, workshop is large enough for trainees, practices in workshop help internalize practical skills, workshop is accessible, equipment

help to acquire employable skills, trainees learn better through practices, poor workshop hampers skills acquisition, adequate learning facilities maintain motivation in acquiring skills, presence and use of safety equipment and maintenance and repair of tools and equipment were statistically significant at 5% level of significance with the overall mean score of the trainees (M=3.0, SD=1.09) confirms that physical facilities influence quality training provision in TVET schools in Rwamagana district, on the other hand and with the same variables, the overall mean score of the trainers of (M=2.95,SD=1.02) further more proves a positive correlation between physical facilities and quality training provision in TVET schools of Rwamagana district.

Extent to which continuous professional development for trainers influences quality training provision in TVET schools

The study used descriptive analysis and multiple linear regression to investigate the extent to which continuous professional development for trainers influences quality training provision in TVET schools. The results from trainers revealed that factors influencing quality training provision in TVET schools are trainers attend continuous professional development regularly, CPD helps trainers to improve training practices, CPD covers all subjects taught in a trade, CPD provides opportunities to reflect on training practices, through CPD pedagogical practices be upheld, new teaching methods are shared and acquired through CPD, CPD provides strategies for learning environment's management, CPD helps trainers to widen and transfer skills, CPD improves student's outcomes, CPD engages in Lifelong Learning, CPD adapts to educational changes and CPD updates subject knowledge were statistically significant at 5% level of significance with the overall mean score of the trainers (M=3.19 SD=1.19) confirms that continuous professional development for trainers influence quality training provision in TVET schools of Rwamagana district.

Extent to which quality assurance influences quality training provision in TVET schools

The study used descriptive analysis and multiple linear regression to assess the extent to which quality assurance influences quality training provision in TVET schools. The results from trainers revealed that factors influencing quality training provision in TVET schools areadvice from quality assurance help in improving training practice, quality assurance oversees the quality of training provision, quality assurance helps in improving workshops, learning environment is ameliorated

through quality assurance, acquisition of practical skills are improved through quality assurance, quality assurance ensure that curriculum is implemented effectively, quality assurance ensure that training provision is labor market-oriented, quality of learning facilities are improved through quality assurance, quality assurance ensures stakeholder engagement and participation, quality assurance ensures timely assessment and evaluation and quality assurance ensures standards and Guidelines were statistically significant at 5% level of significance with the overall mean score of the trainers (M=2.80, SD=0.612) confirms that quality assurance influences quality training provision in TVET schools of Rwamagana district.

To sum up the influence of independents variables on quality training provision in TVET schools, the study measured at what extent physical facilities, continuous professional development and quality assurance influence quality training provision, and the study summed up the R^2 values for each of the measured factors; (29.07% on trainees + 16.74% on trainers) both for physical facilities + (13.74% on trainers CPD) + (17.95% related to trainers' views on quality assurance) = 77.5% and leaving approximately 22.5%of the variation unexplained, which could be due to other factors not measured by the study.

5.3. Conclusion

The results of the study confirmed that the key physical facilities factors influencing quality training provision in TVET schools are; presence of variety of materials in workshop, trainees carry out practice in workshop, workshop is large enough for trainees, practices in workshop help internalize practical skills, workshop is accessible, equipment help to acquire employable skills, trainees learn better through practices, poor workshop hampers skills acquisition, adequate Learning facilities maintain motivation in acquiring skills, presence and use of safety equipment and maintenance and repair of tools and equipment. Therefore, the study concluded that physical facilities influence quality training provision in TVET schools ofRwamagana district.

The results of the study confirmed that the key factors influencing quality training provision are trainers attending CPD regularly, CPD helps trainers to improve training practices, CPD covers all subjects taught in a trade, CPD provides opportunities to reflect on training practices, through CPD pedagogical practices be upheld, new teaching methods are shared and acquired through CPD,

CPD provides strategies for learning environment's management, CPD helps trainers to widen and transfer skills, CPD improves student's outcomes, CPD engages in Lifelong Learning, CPD adapts to educational changes and CPD updates subject knowledge. Therefore, the study concluded that the continuous professional development factors influence quality training provision in TVET schools of Rwamagana district.

The results of the study confirmed that the key factors influencing quality training provision are; advice from quality assurance help in improving training practice, quality assurance oversees the quality of training provision, quality assurance helps in improving workshops, learning environment is ameliorated through quality assurance, acquisition of practical skills are improved through quality assurance, quality assurance ensure that curriculum is implemented effectively, quality assurance ensure that training provision is labor market-oriented, quality of learning facilities are improved through quality assurance, quality assurance ensures stakeholder engagement and participation, quality assurance ensures timely assessment and evaluation and quality assurance ensures standards and Guidelines. Therefore, the study concluded that quality assurance factors influence quality training provision in TVET schools of Rwamagana district.

The study therefore concluded that on the influence of independents variables on quality training provision in TVET schools, the R^2 values for each of the measured factors; (29.07% on trainees + 16.74% on trainers) both for physical facilities + (13.74% on trainers CPD) + (17.95% related to trainers' views on quality assurance) contributed 77.5% on quality training provision in TVET schools in Rwamagana district and leaving approximately 22.5%of the variation unexplained, which could be due to other factors not measured by the study

5.4.Recommendations

The recommandations were made based on the findings from the study. Specifically the recommendations were addressed to policy makers and educational stakeholders and further researchers.

5.4.1. Recommendations for policy makers and educational stakeholders

Ministry of Education through Rwanda TVET Board should ensure that the schools are well equipped with physical facilities with required standards,trainers equipped with skills and competences through professional continuous development sessions. They should also ensure that quality assurance in form of mentorship, coaching and regular inspections are conducted at school level. School managers should ensure that the trainers use the available physical facilities in imparting skills and competences to trainess during teaching and learning process.

5.4.2. Recommendation for further research

Based on the findings of the study, the following recommendtions were made for further research.

- This study focused on exploring factors influencing quality training in TVET schools, a similar study should be carried out in General Education to establish whether the same factors can be provide the same influence on teaching and learning process.
- This study was carried out in Rwamagana district , a similar study should be carried out in other districts or countrywide to establish and conclude whether the factors influencing quality training provision can provide similar results.

REFERENCES

Abdulkadir, R. U., Ibrahim, H. A., Moda, S. G., & Yaro, F. A. (2021). Importance of Instructional Materials for Teaching and Learning of Technical and Vocational Education and Training in Nigerian Technical Schools and Colleges. *International Journal of Education and Evaluation, 7*(3), 2695-1940.

Abdullah, Z., Hoque, K. E., Ramlan, N. H., & Shafee, S. (2019). Designing the structural model of TVET lecturers' professionalism and generic skills based on an empirical study in Malaysia. *Sage Open, 9*(3).

Adams, W. C. (2019). *Factors that influence the employability of Technical Vocational Education and Training (TVET) graduates. A comparative study of two TVET colleges in the Gauteng Province.*

Alam, A. (2022). Social robots in education for long-term human-robot interaction: socially supportive behaviour of robotic tutor for creating robo-tangible learning environment in a guided discovery learning interaction. *ECS Transactions, 107*(1), 12389.

Alemayehu, E. (2021). Does Continuous Professional Development (CPD) Improve Teachers Performance? Evidences from Public Schools in Addis Ababa, Ethiopia. *Research & Reviews: Journal of Educational Studies, 7*(9), 1-17.

Antonio, D. (2020). *Continuing Professional Development (CPD) of Teacher Educators (TEs) within the ecological environment of the island territories of the Organisation of Eastern Caribbean States (OECS).* University of Liverpool.

Audu, R., Umar, I., Atsumbe, B., Maaji, S., & Adedokunn, D. (2020). Assessment of Workshop Facilities in Mechanical Engineering Trade Programmes in North Central States, Nigeria.

Ayeni, A. J., & Adelabu, M. A. (2012). Improving learning infrastructure and environment for sustainable quality assurance practice in secondary schools in Ondo State, South-West, Nigeria. *International Journal of Research Studies in Education, 1*(1), 61-68.

Baan, J., Gaikhorst, L., & Volman, M. (2023). Professional development in inquiry-based working; the experiences of graduates from academic teacher education programmes. *European journal of teacher education, 46*(1), 114-133.

Bamusi, S. (2023). *Exploring quality assurance and enhancement practices in Malawi's TEVET institutions: A case of selected Community Skills Development Centers.* Mzuzu University,

Bano, N., Yang, S., & Alam, E. (2022). Emerging challenges in technical vocational education and training of Pakistan in the context of CPEC. *Economies, 10*(7), 153.

Baryeh, J. O. B. (2009). *Higher education quality assurance in Ghana: How NAB is coping with the balance between improvement and accountability.*

Beard, C., & Wilson, J. P. (2018). *Experiential learning: A practical guide for training, coaching and education*: Kogan Page Publishers.

Camba, J. D., Hartman, N., & Bertoline, G. R. (2023). Computer-Aided Design, Computer-Aided Engineering, and Visualization. In *Springer Handbook of Automation* (pp. 641-659): Springer.

Chepkuto, W. K. (2012). Contributions of quality assurance and standards to curriculum implementation in primary schools of Baringo District, Baringo county, Kenya. *Unpublished M. Ed Project, Kenyatta University*.

Chewachong, G. M. (2021). Teacher quality and the quality of technical and vocational education and training courses: implications for sustainable development in Cameroon. *Policy, 12*(2).

Chikoko, V., & Mthembu, P. (2020). Financing primary and secondary education in sub-Saharan Africa: A systematic review of literature. *South African Journal of Education, 40*(4).

Closs, L., Mahat, M., & Imms, W. (2022). Learning environments' influence on students' learning experience in an Australian Faculty of Business and Economics. *Learning environments research*, 1-15.

Collin, K., Van der Heijden, B., & Lewis, P. (2012). Continuing professional development. In (Vol. 16,pp.155-163):Wiley Online Library.

Creswell, J. W. (2014). *A concise introduction to mixed methods research*: SAGE publications.

Curran, V., Gustafson, D. L., Simmons, K., Lannon, H., Wang, C., Garmsiri, M., . . . Wetsch, L. (2019). Adult learners' perceptions of self-directed learning and digital technology usage in continuing professional education: An update for the digital age. *Journal of Adult and Continuing Education, 25*(1), 74-93.

Danjuma, S., Salihu, M. M., & Hassan, M. (2023). Student Satisfaction With Facility Provision And Quality In Nuhu Bamalli Polytechnic Zaria, Kaduna State, Nigeria. *Western European Journal of Linguistics and Education, 1*(1), 9-20.

Dhokhikah, Y., Trihadiningrum, Y., & Sunaryo, S. (2015). Community participation in household solid waste reduction in Surabaya, Indonesia. *Resources, Conservation and Recycling, 102*, 153-162.

Diop, M. (2020). *The Effectiveness of TVET (Technical and Vocational Education and Training) in Bridging the Skills Gap in Rwanda*: Wilmington University (Delaware).

Dizon, N., Orge, N., & De Guzman, M. F. D. (2019). Continuing professional development through utilization of learning action cell (LAC) sessions of secondary social studies teachers. *Journal of Educational Realities-JERA.2(2)* 1-3.

Ekeh, D. O., Ezeh, C. N., Agomuo, J.-F. O., Obisike, C. A., & Okolie, U. C. (2022). Promoting Competence-Based Education: Footholds For Improving Connectivity Between Tvet Institutions And Industries For Employability Of Graduates. *Ae-Funai Journal Of Education, 2*(1), 282-294.

Ekhalia, B., Kareem, W., Abubakar, H., Onuh, J., & Ekele, O. (2021). Technical Vocational Education And Training (Tvet): A Viable Strategy For Poverty Alleviation In Nigeria. *International Journal of Vocational Education & Training, 26*(3).

Evans, A., Hawksley, F., Holland, M., & Caillau, I. (2008). Improving subject knowledge and subject pedagogic knowledge in employment based secondary initial teacher training in England.

Fatma, A. (2017). *Factors Influencing Life Skills Training in Technical and Vocational Education and Training (TVET) Institutions in Kenya. The Case of National Youth Service-institute of Business Studies, Nairobi County, Kenya.* University of Nairobi,

Friedman, A., & Phillips, M. (2004). Continuing professional development: Developing a vision. *Journal of education and work, 17*(3), 361-376.

Fufa, E., & Kimo, K. (2019). Factors Affecting Technical and Vocational Education and Training Responsiveness to Youth Employability in Arsi Zone. *The Ethiopian Journal of Education, 39*(1), 149-182.

Gebremeskel, M. M. (2019). The practice of quality assurance in the TVET system of the state of Amhara as perceived by major stakeholders. *Bahir Dar Journal of Education, 19*(1), 80-104.

Gerds, P., & Zhao, Z.-Q. (2006). Modular TVET-Teacher-Training-System, Based on Teacher-Qualification-Standards–a Propo-sal of UNIP. *TVET Teacher Education on the Threshold of Internationalisation, 125*, 138.

Goel, K. (2014). *Understanding community and community development.* Niruta Publications,

Gyimah, N. (2020). Assessment of Technical and Vocational Education and Training (TVET) on the development of the World's Economy: Perspective of Africa, Asia and Europe. *Asia and Europe (February 19, 2020)*.

Hailu, E. T. (2012). Analysing the labour outcomes of TVET in Ethiopia: Implication of challenges and opportunities in productive self-employment of TVET graduates. *Retrieved January, 14*, 2014.

HARUNAVAMWE, M., & MNQAYI, R. B. (2021). Exploring the Effect of Continuous Professional Development (CPD) Programs on Employee Performance at Company A in Empangeni, KwaZulu-Natal. *Expert Journal of Business and Management*, *9*(1).

Holliman, A. (2019). Introducing adaptability and transitions. *Psychology Teaching Review, 25*(1), 1-3.

Holloway, J. H. (2006). Connecting professional development to student learning gains. *Science educator*, *15*(1), 37-43.

John, W. S., & Yusri, K. B. (2021). Realistic Quality Assurance For Technical Vocational Education And Training Towards Enhanced Productivity: Literature Review. *Ilkogretim Online*, *20*(4).

Kaplan, A. (2016). Lifelong learning: conclusions from a literature review. *International Online Journal of Primary Education, 5*(2), 43-50.

Karakhanyan, S., & Stensaker, B. (2020). Global trends in higher education quality assurance: Challenges and opportunities in internal and external quality assurance.

Kennedy, K., Wanami, S., & Kerre, B. W. (2018). Challenges affecting the implementation of technical curriculum in public TVET institutions in Kenya: A case of Nandi and Uasin Gishu Counties. *IOSR Journal of Research & Method in Education, 8*(3), 30-34.

Kintu, D., Kitainge, K., Kitainge, M., & Ferej, A. (2019). Trainers' Perception of the Teaching and Learning Approaches used for Competence Development in the Technical Vocational Education and Training institutions in Uganda.

Komaro, M., Maknun, J., Haritman, E., Suryana, A., Rokhim, I., & Putra, R. H. (2022). Analysis of Vocational Lecturer's Pedagogical Competence Needs for TVET: A Case Study on Vocational Lecturers in West Java, Indonesia. *Journal of Technical Education and Training, 14*(2), 24-33.

Kyriakopoulos, G. L. (2021). Globalized inclination to acquire knowledge and skills toward economic development. *WSEAS Trans. Bus. Econ, 18*, 1349-1369.

Leong, H., & Rethinasamy, S. (2023). Continuous professional development: Assessing teachers' experiences with the cascading training model. *Journal of English Language Teaching Innovations and Materials (Jeltim), 5*(2), 160-175.

Luhanga, U., Chen, W., Minor, S., Drowos, J., Berry, A., Rudd, M., . . . Bailey, J. M. (2022). Promoting transfer of learning to practice in online continuing professional development. *Journal of Continuing Education in the Health Professions*.

Maclean, R., & Pavlova, M. (2011). Skills development for employability (TVET) in higher education: Issues and challenges. *Journal of Asian Public Policy, 4*(3), 321-330.

Maingi, J. M. (2019). *Institutional Factors Influencing Acquisition Of Vocational Skills By Trainees In Public Vocational Training Centres In Kakamega County, Kenya Josephine Muthike.*

Malambo, E. (2023). *Situation Analysis of Community Technical Colleges in Malawi, Critical Issues and Practical Implications Affecting their Operationalisation.* Mzuzu University,

Mathaba, S. R. (2023). *The availability, use, and impact of instructional materials in the teaching and learning of life sciences in secondary schools in the Ehlanzeni District, Mpumalanga.*

Mayombe, C. (2023). Promoting youths' skills acquisition through experiential learning theory in vocational education and training in South Africa. *Higher Education, Skills and Work-Based Learning*.

Mbeche, F. G., Riechi, A. R., & Akala, W. J. (2023). Determinants of Efficiency in Skills Development Through Vocational Education and Training (VET) in Kisii County, Kenya. *Journal of Pedagogy, Andragogy and Heutagogy in Academic Practice/ISSN: 2708-261X, 4*(2), 21-47.

Mboya, S. (2023). Impact and Role of Transferable Skills to the TVET Graduates towards the Job Market in the 21st Century in the Kisumu National Polytechnic, Kenya. *The Kenya Journal Of Technical And Vocational Education And Training Vol. 6*, 163.

Memon, G., Joubish, M. F., & Khurram, M. A. (2010). The perceptions of quality assurance in educational institutions of Pakistan. *World Applied Sciences Journal, 11*(12), 1494-1499.

Mohamad, M. M., Sulaiman, N. L., Sern, L. C., & Salleh, K. M. (2015). Measuring the validity and reliability of research instruments. *Procedia-Social and Behavioral Sciences, 204*, 164-171.

Mohammad, D. S., & Ismail, S. (2019). Comparative analysis between Nigeria and Malaysia education policies and employability skills in Tvet curriculum. *Open Journal of Science and Technology, 2*(2), 1-5.

Mormah, F. O. (2023). The Management and Maintenance of Physical Facilities for Quality Assurance in Higher Education in the 21st Century with Innovative Technologies. *African Educational Research Journal, 11*(2), 220-224.

Mumbe, K. (2020). *Institutional factors and the acquisition of employable skills among students in technical, vocational education and training institutions in Kilifi County, Kenya.* University of Nairobi,

Murchan, D. (2018). Introducing school-based assessment as part of junior cycle reform in Ireland: A bridge too far? *Educational Assessment, Evaluation and Accountability, 30*(2), 97-131.

Mutebi, R., & Ferej, A. (2023). A Review of TVET Quality Assurance Practice in Uganda.

Mutebi, R., & Kiplagat, H. (2023). A Role for TVET in Organizational Training and Development. *Africa Journal of Technical and Vocational Education and Training, 8*(1), 91-100.

Ndukwe, C. I., & Allen, K. B. (2018). Quality assurance of technical vocational education and training (TVET) programme among business educators in higher institutions in rivers state. *Nigerian Journal of Business Education (NIGJBED), 5*(2), 9-20.

Njenga, M. (2018). *Continuing professional development for TVET teachers in Kenya.* Paper presented at the 8th Trefort Agoston Conference on Vocational and Higher Education Pedagogy.

Ochieng, V. O., & Ngware, M. (2022). Whole youth development and employment: Exploring the nexus using qualitative data from a Kenyan study of Technical and Vocational Education and Training institutions. *Journal of Adult and Continuing Education, 28*(2), 558-594.

Ochuba, N. A., Olutimehin, D. O., Odunaiya, O. G., & Soyombo, O. T. (2024). The evolution of quality assurance and service improvement in satellite telecommunications through

analytics: a review of initiatives and their impacts. *Engineering Science & Technology Journal, 5*(3), 1060-1071.

Ogony, D. A. (2017). *Factors Influencing Implementation of Quality Management System in Technical Vocational Education and Training Institutions in Nairobi County, Kenya.* University of Nairobi.

Ogwo, B. A. (2018). Re-visioning technical vocational education and training (TVET) for the youth in sub-Saharan Africa (SSA) and the Sustainable Development Goals (SDGs): Prospects and promises within the framework of the ubuntu paradigm. *Re-Visioning Education in Africa: Ubuntu-Inspired Education for Humanity*, 155-173.

Ojera, D. A., Simatwa, E. M., & Ndolo, M. A. (2021). Impact of Workshop Utilization on Trainees Skill Acquisition in Engineering Courses in TVET Institutes-Lake Victoria Region, Kenya.

Okeke, O. J. (2015). Quality Assurance In Teaching And Learnining In Tertiary Institutions In Nigeria. *Journal of General Studies, 3*(1), 92-99.

Okumu, G., & Kenei, J. (2023). Factors Promoting Acquisition of Employable Skills Among Students in Technical and Vocational Education and Training Institutions in Kenya. *The Kenya Journal Of Technical And Vocational Education And Training VOL. 6*, 147.

Oluwadare, A. A. (2019). Quality Assurance of skill acquisition centres as perceived by business educators in Ondo State tertiary institutions. *Nigerian Journal of Business Education (NIGJBED), 6*(2), 152-162.

Omole, O. A., & Omole, A. S. (2020). Competency Needs of Operators of Technical Vocational Education and Training for Sustainable Development Goals. *VOCED plus International Tertiary Education Research Database. International Journal of Vocational Education & Training, 25*(2), 64-74.

Ongulu, M., & Ibrahim, K. (2021). Influence Of Adequacy Of Teaching And Learning Resources On Students'enrolment In Technical, Vocational Education And Training Institutions In Butula Sub-County, Busia County. *International Research Journal of Social Sciences, Education and Humanities, 2*(1).

Paing, L. L. H. (2020). *A Study on the relationship between image and students' loyalty towards TVET (Government technical high school, Ywama).* MERAL Portal,

Patten, M. (2016). *Questionnaire research: A practical guide*: routledge. https://doi.org/10.4324/9781315265858-5

Radó, P. (2020). The adaptability of education systems to future challenges in context: An analytical framework. *CEU Center for Policy Studies. Working Paper Series, 1*.

Rohanai, R., Daud, K. A. M., Omar, N. H., Ismail, M. E., & Sulaiman, A. (2020). Concept of Correlation between Active Learning and Employability Skills in TVET. *Online Journal for TVET Practitioners, 5*(1), 15-22.

Rufai, A. (2014). *Conceptual model for technical and employability skills of Nigerian mechanical engineering trades programme.* Universiti Teknologi Malaysia,

Rukundo, D., & Sikubwabo, C. (2021). *Contribution Of Technical And Vocational Education And Training (Tvet) Program In Promoting Employment Opportunities Among The Youth In Rwanda:A Case Of Nyabihu District (Rwanda).*

Rwamu, F. (2019). *Factors Affecting Practicl Skills aquisition Among Techical and Vocational Education Training Learners: A Case Study of IPRC Kigali.* Univerity of Rwanda College of Education.

Sako, L. P. (2020). *Integrating inclusive practices at Technical and Vocational Education and Training (TVET) colleges in Limpopo Province.*

Schnobel, L. E. W. (2019). *The relevance of qualifications offered at a selected Technical and Vocational Education and Training (TVET) college in Mpumalanga.*

Sekerin, V. D., Gaisina, L. M., Shutov, N. V., Abdrakhmanov, N. K., & Valitova, N. E. (2018). Improving the quality of competence-oriented training of personnel at industrial enterprises. *Calitatea, 19*(165), 68-72. https://doi.org/10.46254/eu05.20220580

Shefiu, R., & Ayika, S. (2019). Technical Vocational Education and Training (TVET) as a Panacea to Solving Nigeria's Youths' Problem of Unemployment. *Continental Journal of Social Sciences, Raheem and Ayika, 1*(1), 1-16.

Sisay, A. (2023). Factors Affecting Academic Performance Of Secondary School Students In Abobo Woreda, Angniwa Zone, Gambella Region, Ethiopia. https://doi.org/10.7176/rjfa/14-9-03

Somantri, C., & Iskandar, H. (2021). *The Impact of CPD in Teaching, and the Role of Principal in Promoting CPD.* Paper presented at the 4th International Conference on Research of Educational Administration and Management (ICREAM 2020). https://doi.org/10.2991/assehr.k.210212.074

Timperley, H., Wilson, A., Barrar, H., & Fung, I. (2007). *Teacher Professional Learning and Development. Best Evidence Synthesis iteration (BES).*

Udofia, N.-A. (2017). Impact of Technical and Vocational Education on the Nigerian Economy. *Journal of Social Economics*, *4*(1), 8-17.

Umar, I. Y., & Maaji, A. S. (2010). Umar, IY, & Maaji, AS (2010). Repositioning the Facilities in Technical College Workshops for Efficiency: A Case Study of North Central Nigeria.

Villarroel, V., Benavente, M., Chuecas, M. J., & Bruna, D. (2020). Experiential learning in higher education. A student-centered teaching method that improves perceived learning. *Journal of University Teaching & Learning Practice, 17*(5), 8-12.

Wang, C., Dong, Q., Wang, X., Wang, H., & Sui, Z. (2022). Statistical dataset evaluation: Reliability, difficulty, and validity. *arXiv preprint arXiv:2212.09272*. https://doi.org/10.1002/leap.1229

Wausi, D. M. (2018). *Institutional Factors Influencing Trainees Participation Rates In Public Technical, Vocational Education And Training Institutes In Makueni County, Kenya.* University of Nairobi, https://doi.org/10.47191/ijcsrr/v5-i3-25

Williams, R. (2020). A systematic review of the continuous professional development for technology enhanced learning literature. *Engineering International, 8*(2), 61-72.

Yaakub, M. B. H., Othman, K., & Yousif, A. F. (2014). Knowledge management practices in Malaysian higher learning institutions: A review on selected cases. *International Journal of Education and Research*.

Yambi, T. (2018). Assessment and evaluation in education. *University Federal do Rio de Janeiro, Brazil*.

Yangben, P. (2014). Career challenges in construction craft training in technical vocational education and training in Ghana. *International Journal of Vocational and Technical Education, 6*(3), 13-29.

APPENDICES

APPENDIX 1: QUESTIONNAIRE FOR TRAINEES

Section A

Please tick (√) in the appropriate space

1. Gender

Male (……) Female (……..)

2. Indicate your level of education

Level 1 (……), Level 2 (……..), Level 3 (……..), Level 4 (……..) and Level 5 (……..)

Section B

This section is made up of variables related to factors influencing quality training provision in technical and vocational educational and training schools. Please Tick (√) in the appropriate space to show your response to every factor.

Keys:

Strongly Agree (S A)
Agree (A)
Disagree (D)
Strongly Disagree (S D)

A. Physical facilities

No	Items	SA	A	D	SD
1	Presence of variety of materials in workshop				
2	Trainees carry out practice in workshop				
3	Workshop is large enough for trainees				
4	Practices in workshop help internalize practical skills				
5	Workshop is accessible				
6	Equipment help to acquire employable skills				
7	Trainees learn better through practices				
8	Poor workshop hampers skills acquisition				
9	Adequate Learning facilities maintain motivation in acquiring skills				
10	Presence and use of safety equipment				
11	Maintenance and Repair of tools and equipment				

B. Mention factors influencing the quality of training in your school (TVET)

……

……

……

Thank you !

APPENDIX 2: QUESTIONNAIRE FOR TRAINERS

Section A

Please tick (√) in the appropriate space

Gender

Male (……)

Female (……...)

Academic qualification

A2 (……..)

A1 (……)

A0 (……)

Masters (……)

PhD (……..)

Section B

This section is made up of variables related to factors influencing quality training provision in technical and vocational educational and training schools. Please indicate by putting a tick (√) in appropriate space to show your response.

KEYS:

Strongly Agree (S A)
Agree (A)
Disagree (D)
Strongly Disagree (S D)

A. Influence of physical facilities on quality training provision

SNo	Items	SA	A	D	SD
1	Most of trainings take place in workshop				
2	Workshops are adequately equipped with materials				
3	Variety of materials are available according to trade				
4	Employable skills are taught through various equipment				
5	Workshops are large enough				
6	Learning materials help students to learn well				

7	Workshops are accessible for all students				
8	Workshops are large enough				
9	Use of Library				
10.	Use of computer Lab.				

B. Influence of continuous professional development on quality training provision

SNo	Items	SA	A	D	SD
1	Trainers attend continuous professional development regularly				
2	CPD helps trainers to improve training practices				
3	CPD covers all subjects taught in a trade				
3	CPD provides opportunities to reflect on training practices				
4	Through CPD pedagogical practices be upheld				
5	New teaching methods are shared and acquired through CPD				
6	CPD provides strategies for learning environment's management				
7	CPD helps trainers to widen and transfer skills				
8	CPD improves student's outcomes				
9	CPD engages in Lifelong Learning				
10	CPD adapts to educational changes				
11	CPD updates subject knowledge				

C. Influence of quality assurance on quality training provision

SNO	Items	SA	A	D	SD
1	Advice from quality assurance help in improving training practice				
2	Quality assurance oversees the quality of training provision				
3	Quality assurance helps in improving workshops				
4	Learning environment is ameliorated through quality assurance				
5	Acquisition of practical skills are improved through quality assurance				
6	Quality assurance ensure that curriculum is implemented effectively				
7	Quality assurance ensure that training provision is labor market - oriented				
8	Quality of learning facilities are improved through quality assurance				
9	Quality assurance ensures stakeholder engagement and participation				
10	Quality assurance ensures timely assessment and evaluation				
11	Quality assurance ensures standards and Guidelines				

Thank you !

APPENDIX 3: GUIDED INTERVIEW

This section is made up of variables related to factors influencing quality training provision in technical and vocational educational and training schools. Please answer and tick (√) where necessary to show your response.

1. **A**. As school manager, what do you do in order to ensure professional development of trainers?

   B. What does school manager (SM) do for hands-on skills acquisition be enhanced in the process of teaching and learning ?

2. **A**. As school manager, how do you control and maintain quality training provision in your school?

   B. How often is CPD session conducted to fill methodological gaps among the trainers?

3. As school manager, is there any factors hindering quality training provision in your school?

   i. Yes ☐ or ii. No ☐

   If yes, explain.

4. A. As school manager, what are factors influencing quality training provision in your school?

   B. What does School Manager do to align teaching and learning activities to industry requirements and labor market needs ?

5. As school manager, what strategies do you put in place to ensure quality training provision in your school?

Thank you !

APPENDIX 4: RESEARCH RECOMMENDATION LETTER

UNIVERSITY of RWANDA

COLLEGE OF EDUCATION

RESEARCH AND INNOVATION UNIT

Rukara, 19th June 2023
Ref: 03/DRI-CE/092(b)/EN/gi/2023

The Mayor
Rwamagana district
Eastern Province
Rwanda

Re: Research recommendation letter for Mr Sylvestre NIYONASENZE

On behalf of the University of Rwanda-College of Education (UR-CE), I introduce Mr Sylvestre Niyonasenze, a postgraduate student at the School of Education of UR-CE. He is writing his thesis on: "**Exploring Factors Influencing Quality Training Provision in Technical and Vocational Educational and Training Schools**" to complete his Master of Education in Curriculum and Instruction.

His research will involve TVET School managers, trainers, and trainees from public secondary schools in the Rwamagana district. Therefore, we kindly request your permission for him to collect data for this study.

We very much hope to get your usual cooperation.

Yours sincerely.

COLLEGE OF EDUCATION
UNIVERSITY of RWANDA
RESEARCH AND INNOVATION UNIT

Assoc. Prof. Eugene NDABAGA
Director of Research and Innovation
University of Rwanda-College of Education
E-mail: ndabagav@yahoo.ie
Mobile: +250788308862

Cc:

- Principal, UR-CE
- Postgraduate Program Coordinator, School of Education
- Prof. Wenceslas Nzabalirwa (Supervisor)

APPENDIX 5: RESEARCH ETHICAL CLEARNANCE

UNIVERSITY of RWANDA

COLLEGE OF EDUCATION

RESEARCH AND INNOVATION OFFICE

Rukara, 19th June, 2023
Ref: 03/DRI-CE/092(a)/ EN/gi/2023

Mr Sylvestre NIYONASENZE
Master Student
Master of Education in Curriculum and Instruction
School of Education
UR-CE

Dear Mr Niyonasenze,

RE: RESEARCH ETHICAL CLEARANCE FOR YOUR STUDY

Following your application for research clearance for your study entitled: **"Exploring Factors Influencing Quality Training Provision in Technical and Vocational Educational and Training Schools;"**

Having reviewed your application and being satisfied with your protocol (research topic, interview schedule, and questionnaire): this study is ethically acceptable. This ethical clearance shall last for 18 months and is renewable upon your request and presentation of the progress report to the UR-CE Research Screening and Ethics Clearance Committee (RSEC-C) through the Research and Innovation Unit. Please note that you will have to apply for ethical clearance before making changes in the protocol during the implementation phase. The Research and Innovation Unit shall receive a final copy of your study report at the end of your study.

We wish you success in your study.

COLLEGE OF EDUCATION
UNIVERSITY of RWANDA
RESEARCH AND INNOVATION UNIT

Assoc. Prof. Eugene NDABAGA
Chairperson, UR-CE RSEC-C
Director of Research and Innovation Unit
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UR-College of Education

Cc:

- The Principal, CE
- Dean, School of Education
- Prof. Wenceslas Nzabalirwa (Supervisor)

APPENDIX *6:* LETTER FROM RWAMAGANA DISTRICT

REPUBLIC OF RWANDA

Rwamagana 23./05/ 2023
N°3135/05.01

EASTERN PROVINCE
RWAMAGANA DISTRICT
P.O. BOX 24 RWAMAGANA

To NIYONASENZE Sylvestre

Re: Response to your letter to carry out research

Dear NIYONASENZE Sylvestre,
Reference is made to your letter requesting the Permission to carry out research on the study entitled **"Exploring Factors influencing quality training provision in technical and vocational educational and training schools"** in Rwamagana District;

I hereby allow you to carry out your research in Rwamagana District for the above mentioned subject and I request you to share with us your research findings.

I wish you all the best.

Yours faithfully,

MBONYUMUVUNYI Radjab
Mayor of Rwamagana District

APPENDIX 7: TURNITIN REPORT

EXPLORING FACTORS INFLUENCING QUALITY TRAINING PROVISION IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING SCHOOLS IN RWAMAGANA DISTRICT, RWANDA