FACTORS AFFECTING PRACTICAL SKILLS ACQUISITION IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET) SCHOOLS IN RWANDA: THE CASE OF RULINDO DISTRICT

A thesis submitted in partial fulfillment of the requirements of the degree of Master of Education in Curriculum and Instruction

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DECLARATION

I, **Jean Damascene Rikunze** declare that this thesis is the result of my own work and has not been submitted to any other institution for any degree. It passed through the anti-plagiarism system and was found to be compliant.

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DEDICATION

This thesis is dedicated to Almighty God, to my spouse Florence Niyiduha, to my daughter Louange Larissa Ineza, to my parents and to my relatives.

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This work could not be accomplished without the help and support of many people. Different people provided their immeasurable contribution that helped me to bring this dissertation to completion.

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May Almighty God bless you all!

ABSTRACT

TVET schools aim at equipping learners with practical skills, and these will help them to be more competitive on the labour market. This will reduce unemployment among young people and help Rwanda to continue growing its economy and become a middle income country. However, there are challenges that affect the practical skills acquisition in TVET schools in Rwanda. This study examined the factors that affect the practical skills acquisition in the TVET schools in Rulindo district, the challenges that affect the TVET schools in Rulindo district, and the effects of these challenges on the practical skills acquisition. A sample of 299 respondents was selected to identify the factors, determine the challenges and their effects and present recommendations and suggestions. This sample comprised 280 TVET trainees, 16 trainers and 3 school managers. Questionnaires were administered to collect data from trainees and trainers, and interviews were conducted out to collect data from the school managers. The descriptive statistics to analyse the quantitative data and thematic analysis approach was used for qualitative data. The findings were presented in tables, graphs, charts and texts.

The findings of this study revealed 5 main factors that influence practical skills acquisition in TVET schools. These are: relevance of curriculum, qualification of trainers, hands-on training, industry partnership and availability of resources. Above 75.0% of respondents strongly agreed with all these factors. Only 12.5% were neutral about the industry partnership and none of the respondents (0%) disagreed with any of these factors; they all agreed or strongly agreed. The challenges the hinder the TVET schools include, among many others, the following: lack of training manuals, insufficient materials, tools and equipment for practical sessions, insufficient infrastructure and difficulty in finding IAP for trainees. Some of the effects caused by the aforementioned challenges include getting insufficient practical skills, poor performance in IAP and uncovered curricula. All the respondents (100%) presented the lack of training manuals as the most challenge they have. The respondents who presented the insufficient qualified trainers are 53.2%. All other challenges were revealed by 75.0% or more of the respondents. Despite the challenges that affect practical skills acquisition in TVET schools, some respondents expressed their recognition of importance of TVET. They also provided their recommendations on what should be done to overcome such factors that hinder the practical skills acquisition in TVET schools. For instance, they suggested that the government and TVET education stakeholders

should provide adequate infrastructure to schools in order to make the learning environment conducive. In addition, the industrial attachment program should be done at different times in order to ease the companies that host trainees.

Keywords: TVET schools in Rwanda, factors affecting TVET schools, challenges on TVET education.

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ACRONYMS

AU: African Union

CBT: Competency Based Training

CBA: Competency Based Assessment

EAC: East African Community

ESSP: Education Sector Strategic Plan

IAP: Industrial Attachment Program

ILO: International Labour Organisation

MIFOTRA: Ministry of Public Service and Labour

MINEDUC: Ministry of Education

RQF: Rwanda Qualification Framework

RP: Rwanda Polytechnic

RTB: Rwanda TVET Board

RTTI: Rwanda TVET Trainer Institute

SWOT: Strengths, Weaknesses, Opportunities and Threats

TVET: Technical and Vocational Education and Training

UNESCO: United Nations Educational, Scientific and Cultural Organisation

WDA: Workforce Development Authority

CHAPTER ONE: GENERAL INTRODUCTION

1.1.Introduction

This research investigated the factors that affect practical skills acquisition in TVET schools in Rulindo district. It also examined the challenges that hinder the skills acquisition in those TVET schools. This chapter includes the background to the problem, statement of the problem, research objectives, research questions, significance and the scope of the study.

1.2.Background to the problem

TVET sits at the crossroads of education and employment, aiming to help both young people and adults enter the workforce and advance in their careers. The skills required for young people and adults to succeed in the workplace are changing quickly, including job specific skills, foundational abilities, soft skills, and capacity to manage change while engaging with both local and global communities (UNESCO, 2021). In this regard, TVET systems must proactively adjust their training offerings to benefits individuals, economies and society as a whole.

According to UNESCO (2016), TVET is expected to contribute to the implementation of the 2030 Agenda for Sustainable Development. It is also reminded that the today's world is facing the rising youth unemployment for developed and developing countries. To handle this challenge, UNESCO set a five-year (2016-2021) strategy to enhance TVET systems in the member states so as they can equip the youths and adult people with employable skills.

In many developing countries, TVET is anticipated to fulfill social, economic, and environmental functions for national sustainable development. Firstly, it aims to offer training and career advancement opportunities for the growing number of school leavers. Secondly, it seeks to supply the skilled workforce necessary at every level of the economy (Wahba, 2011). This author reiterates that the skills acquired should promote self-sufficiency in the absence of traditional employment and support the industrialization effort. On the other hand, he regrets that despite being utilized by various developing countries as a tool for sustainable development, in some countries, TVET remains left to the periphery and its importance has not been fully acknowledged.

Alam (2015) reminds that improvement of human development is necessary for any country that needs to develop economically. He continues that TVET can contribute a lot to improving human development because it prepares people with skills that would enable them to play their role in different economic sectors. Furthermore, the African Union (2007), in its strategy to revitalize TVET in Africa, emphasizes the importance African countries attach to TVET and its contribution to reducing poverty in Africa. In the same document, it is reiterated that TVETs are there to train skilled people that will help Africa to emerge from poverty. Therefore, the African Union (AU) set strategies to revitalize the TVET in Africa so that they can contribute to the socio-economic development of African countries.

According to Brown and Slater (2018), Sub-Saharan Africa (SSA), which is the world's youngest region, is growing at a rapid rate. In 2030, it is expected that the youth will constitute 37 percent of the working population in the SSA. However, Africa is already facing the problem of rising unemployment rate among the youth, which doubles that of the adults. Thus, Africa is recommended to improve the quality and the relevance of secondary education and TVET as this will help the youth to acquire the necessary knowledge and skills for productive work.

The African Union Outlook on Education Report (2014) says that the challenges faced by TVET in developing countries need to be addressed if it is real that TVET contributes to national developments. The report recognizes that skills development programmes are very important for African countries whose most of the population is young. In this regard, all East African Community (EAC) member states made an effort in creating an environment for development and growth of TVET.

From this context, Rwanda remains recognizant of the importance of TVET in its development (MINEDUC, 2015). In addition, the TVET Policy by the Ministry of Education (2015) states that Rwanda has a vision of developing a TVET system that produces quality graduates with employability skills. Moreover, the Ministry of Education (2018), in its Education Sector Strategic Plan (2018/2019-2023/2024), states that Rwanda's education system needs to be able to produce skilled workforce in order to become an industrial upper middle-income country by 2035. This Educational Sector Strategic Plan (ESSP) reiterates that TVET has to produce

graduates that have skills required on the labor market. However, TVET graduates still have some lack of skills. According to Rwanda Development Board (RDB), TVET and Universities are not effectively producing graduates with employable skills. These institutions are failing to equip students with the necessary skills for employment, as evidenced by only 20% of recent graduates securing full-time jobs after graduation (RDB, 2019).

According to the 2018-2024 District Development Strategy (DDS) of Rulindo District (Rulindo, 2018), TVET schools will contribute to socioeconomic development and labor market productivity. TVET graduates will contribute to the increment of off-farm jobs and poverty reduction in Rulindo district. In this regard, this study investigated the factors that affect practical skills acquisition in TVET schools in Rulindo district. However, as discussed above, TVET graduates still have a lack of employable skills. This research also examined the challenges that TVET schools in Rulindo district are faced with, and the impact they can have on the acquisition of practical skills. During this research, the data were collected from TVET school managers, trainers and trainees. They also provided recommendations for improving skills acquisition in TVET schools.

1.3.Statement of the problem

Rwanda aspires to reach upper income status by 2035 and this will require investments in human capital in order to improve knowledge and skills of the population. To achieve this, the government of Rwanda spearheads the TVET as one of the priorities to generate skills for the workforce (MINEDUC, 2023). That is why Rwanda desires a TVET system that produces skilled workforce, promotes entrepreneurship, supports sectoral growth and enhances social mobility. In the 2015 Rwanda TVET Policy (MINEDUC, 2015), the State Minister in Charge of TVET reminds that TVET has to emphasize on equipping learners with employable skills in order to produce people who are skilled and entrepreneurial so that they help Rwanda to make its wealth. He adds that TVET, in collaboration with the Private Sector, will contribute to producing this skilled and entrepreneurial workforce. Moreover, Rwanda has a mission of equipping youth with skills so as they can actively participate in the accelerated economic growth (MIFOTRA, 2015).

Despite the significant strides Rwanda has made to developing TVET, some challenges persist. According to Mohammed B. (2020), those challenges include insufficient practical experience,

inadequate industry partnerships and mismatch between the skills acquired and the demands of the labor market. In addition, graduates face issues like limited job opportunities, lack of soft skills, and insufficient career guidance. Therefore, this author highlights the need for improved curricula, stronger collaboration between educational institutions and industries, and enhanced support systems to facilitate a smoother transition for TVET graduates into the workforce.

This gap between the desired TVET system and the one that is in place should be addressed in order to help Rwanda achieve its economic growth aspirations. This study investigated the factors affect the acquisition of practical skills in TVET schools in Rulindo district and the challenges that the TVET schools are faced with. The findings of this study will be useful for TVET stakeholders, especially policy makers to overcome the challenges facing TVET schools so that it can effectively contribute to the development of Rwanda.

1.4.Research objectives

This research had the following objectives:

1. To investigate the factors that affect practical skills acquisition in TVET schools in Rulindo district.
2. To investigate the challenges faced by TVET schools in Rulindo district.

1.5.Research questions

This study was guided by and examined answers to the following questions:

1. What are the factors that affect the practical skills acquisition in TVET schools in Rulindo District?
2. What are the challenges that are faced by TVET schools in Rulindo district?

1.6.Significance of the study

Skills development and employment promotion are crucial to Rwanda's transformative Vision 2050, which seeks to ensure a high standard of living for all citizens. To reach this objective, Rwanda needs to cultivate a dynamic and skilled workforce to meet the increasing demand for high-skilled jobs. TVET plays a vital role in this agenda by equipping individuals with the knowledge, hands-on skills, and competencies required for specific occupations and the broader labor market (RTB, 2021). However, there are still some challenges that TVET education is still

facing. Some of the challenges include unskilled trainers and poor infrastructure (RP, 2019). This study which investigated more challenges affecting TVET education revealed that, amongst many other factors, there is insufficient practice, overload curricula, insufficient time for session preparation. This study is significant because its findings provide knowledge of factors that affect the practical skills acquisition in TVET schools in Rulindo district and the challenges that those TVET schools are faced with. People who will benefit from this study include educational policy makers, schools and students, and researchers.

Educational policy makers will benefit from the results of this study because after revealing the factors that affect practical skills acquisition in TVET schools, they may improve their plans for TVET in order to avoid factors that may negatively affect the skills acquisition in TVET schools. They may also engage in overcoming the challenges that the TVET schools are faced with.

The schools and students will benefit from the findings of this study in that after revealing the challenges that face TVET schools such as poor infrastructure, unqualified trainers, insufficient practices, the ministry of education may intervene to overcome those challenges. If the schools are provided with good infrastructures, well-trained teachers and enough consumables for school practices it will positively affect the students' performance and they will be a good fit in the labour market.

Finally, future researchers will also benefit from the results of this study. As this study provide information factors that affect practical skills acquisition in TVET schools in Rulindo district and the challenges that those TVET schools are faced with, future researchers may use the findings of this study as a reference for their future studies or it may also be a basis for tier future research.

1.7.Scope and limitation of the study

According to the Rwanda Qualification Framework, there are nine (9) TVET levels (MINEDUC, 2021), but this study was limited to Basic TVET levels (Level 1 to Level 5). It was confined to only TVET schools in Rulindo district. For that reason, the findings of this study cannot be generalized beyond Rulindo district. This study investigated the factors that affect practical skills acquisition in TVET schools in Rulindo district and the challenges that these TVET schools are

faced with. The primary limitations of this study were time and financial resources. The research was conducted over just eight months, which was insufficient to gather a substantial amount of data from many TVET schools. Furthermore, collecting data from a broader area necessitates a greater financial resource. In line with this, the research was conducted only in sampled TVET schools in Rulindo district.

CHAPTER TWO: LITERATURE REVIEW

2.1.**Introduction**

This chapter explores the literature related to factors that affect the acquisition of practical skills in TVET and the challenges that the TVET education faces. It is organized in four main sections. The first part is the theoretical review, which discusses different theories that are related to factors that affect practical skills acquisition in TVET and the challenges that hinder the practical skills acquisition. The second section is the empirical review, which discusses the views of different authors who wrote about factors that affect skills acquisition in TVET and the challenges that TVET schools are faced with. This part is followed by the theoretical framework associated with the factors that affect the TVET education. This part discusses the theory that guided this study. Finally, the last section is the conceptual framework that captures the necessary elements of the literature review is included as well.

2.2. **Theoretical review**

There are different theories related to factors and challenges affecting practical skills acquisition in TVET schools. These theories can significantly influence the development of research methods related to factors and challenges that affect the practical skills acquisition in TVET schools. Some of these theories are discussed below.

2.2.1. **Human capital theory**

The human capital theory emerged in the 1950s and early 1960s and many scholars wrote on it. According to Theodore W. Schultz (Schultz, 1961), human capital is the collection of skills, knowledge and experiences that individuals possess, which can be enhanced through education and training. In addition, he highlights the importance of human capital in fostering economic development and suggests that countries with a more educated workforce tend to experience higher levels of economic growth. Therefore, he advocates for policies that promote education and skills development, particularly in developing countries, as a means to enhance human capital and drive economic progress.

The human capital theory was also of significant interest for an American scholar, Gary S. Becker. He emphasizes the idea that education is an investment, akin to physical capital, for

people incur costs (tuition, time, effort) with the expectation of future returns in the form of higher earnings (Becker, 1993). He argues that human capital is crucial for economic development because a more educated workforce can lead to increased productivity, innovation, and overall economic growth. Moreover, he pays attention to the need for policies that improve access to education and training, suggesting that such investments are essential for enhancing human capital and promoting economic advancement. Beyond economics, Becker explores how education and human capital relate to issues like social mobility, inequality and crime, suggesting that investments in human capital can lead to positive societal outcomes.

The human capital theory relates this study about factors and challenges that affect the practical skills acquisition in TVET schools. It posits that education and training are investments in human capital that lead to better job opportunities and economic outcomes. This is related to the TVET context, where the emphasis on practical skills acquisition directly ties to the idea that enhancing these skills increases an individual's productivity and employability. In addition, the human capital theory acknowledges that various factors can hinder the acquisition of human capital. In the context of this study, challenges such as inadequate funding, lack of qualified trainers, poor infrastructure, and insufficient industry partnerships can be analyzed through this lens.

2.2.2. **Social learning theory**

The social learning theory emphasizes the importance of observational learning, in which individual gain knowledge, skills, attitudes and beliefs by observing the actions of others and the resulting consequences, prompting them to imitate and adopt those behaviors. According to Albert Bandura, learning is a social process influenced by interactions with others and environments, which demonstrates that observation and imitation are fundamental ways through which individuals acquire new behaviors and skills (Bandura, 1977). The social learning theory is much related to this study in many ways.

Firstly, it emphasizes that individuals learn by observing others. In TVET schools, students often learn practical skills by watching trainers and peers. This means that the effectiveness of observational learning can depend on the quality of the teaching staff and the interactions among students.

Secondly, the social learning theory highlights the importance of social interactions in learning. In a TVET setting, collaboration among students can enhance skills acquisition. Group projects, peer feedback and shared problem-solving can facilitate learning, making it essential for schools to promote a collaborative environment where students support each other in developing practical skills.

Finally, the social learning theory emphasizes the importance of having access to resources and role models. Access to resources, such as materials, tools and experienced role models, can significantly affect learning outcomes. If students have opportunities to interact with industry professionals and alumni who exemplify successful careers in their fields, they are likely to be inspired and motivated to acquire the necessary skills.

2.2.3. **Situated learning theory**

The situated learning theory emphasizes that learning is deeply embedded in specific context and activities, rather than being a purely cognitive process (Resnick, 1987). He argues that knowledge is not simply a collection of facts but is tied to the specific situations in which it is acquired and used. Jean Lave and Etienne Wenger also worked on this theory and emphasize that learning occurs within a specific context and is inherently tied to the social and physical environment in which it takes place (Lave & Wenger, 1991). They argue that knowledge is not just abstract but is deeply connected to the situation in which it is learned. In addition, learning is viewed as a social process, where interaction with others plays a crucial role, so collaboration and engagement within a community of practice enhance the learning experience. They emphasize the importance of engaging in real-world tasks and problems that are relevant to learners for this authenticity helps bridge the gap between theory and practice, which makes learning more meaningful.

The situated learning theory offers valuable insights to this study about the factors and challenges that affect practical skills acquisition in TVET schools. Firstly, the situated learning theory emphasizes that learning is most effective when it occurs in real-world contexts. This relate to the fact that in TVET programs, practical skills should be taught in environments that closely resemble the workplaces students will enter. Secondly, as the situated learning theory considers learning as a social process, in TVET schools, collaboration among students,

instructors and industry professionals can significantly impact skills acquisition in that peer learning and mentorship from experienced instructors create an environment where students can share knowledge, ask questions and receive feedback, thereby enhancing their practical skills. Finally, the situated learning theory underscores the significance of roles models and mentors in the learning process. Therefore, in TVET settings, experienced instructors and industry professionals can serve as mentors, guiding students through practical tasks and providing feedback. This mentorship is crucial for building confidence and competence in practical skills.

2.2.4. **Theory of constraints**

The theory of constraints focuses on identifying and addressing the most critical limiting factors that impede a system's performance (Goldratt, 1990). Goldratt presents this theory through a business novel format, following the story of a plant manager who must save his factory from closure. He defines a constraint as any factor that limits a system's performance. This may include a resource, a policy, or any aspect of the operation that restricts output.

This theory of constraints can provide a valuable framework for analyzing and addressing the challenges related to practical skills acquisition in TVET schools. For instance, it can help to assess whether there are constraints related to facilities, equipment or materials that hinder effective practical training. In addition, it can help in aligning curriculum with industry needs by ensuring that the training programs and teaching methods are designed to support the development of skills that are most relevant to the job market. Furthermore, as this theory emphasizes on elevating constraints, there should be more investments in training and resources. This implies identifying areas where additional investment (e.g., new equipment, training) can alleviate the constraints. This might involve partnerships with local businesses or government programs to enhance training facilities. Finally, TVET should be viewed as a system. Holistic approaches should be applied to view TVET as a system where various factors (i.e. teaching methods, curriculum, and students' engagement.) interact. This holistic perspective can help in understanding how changes in one area may impact the overall skills acquisition process.

2.3.**Empirical review**

2.3.1. **Concept of TVET**

The technical and vocation education and training (TVET) consists of education, training and skills development that relate to a large range of occupational fields, production, services, and livelihoods (UNESCO, 2015). TVET is a part of life-long learning and it can take place at secondary, postsecondary or tertiary levels. TVET can also be defined as a general education that goes along with technological and practical skills that are needed at workplace and in daily life (Fawcett, Sawi, & Allison, 2014).

TVET systems worldwide are classified in three distinct models: the liberal market economy model, the state regulated bureaucratic model and the dual system model (Sellin, 2002). All these TVET models are implemented in different countries and they are mostly experienced in Europe.

2.3.2. **TVET and its importance in general**

TVET is important because it contributes to sustainable development. Paryono (2017) remarks that TVET is considered as priority by the G20, the Organization for Economic Co-Operation and Development (OECD), the International Labor Organisation (ILO) and the South East Asia. In addition, Nugraha et al. (2020) claim that TVET graduates should be equipped with employable skills that enable them to readily go to the labor market. Therefore, they advocate for curriculum that balances the programs with industry requirements. This paper also highlights the role of industry partnership ion ensuring that training remains relevant to job market needs. Furthermore, the Rwanda Ministry of Education (2015) reminds that the mission for TVET is to produce graduates who have employable skills so that they can work for themselves, for the country and be competitive on international labor market.

TVET holds immense significance in addressing the complex challenges of a rapidly evolving global economy. It plays a pivotal role in equipping individuals with practical skills, fostering innovation, and contributing to sustainable development. According to UNESCO (2012), Technical and Vocational Education and Training (TVET) plays a very big role in shaping the global workforce by providing practical skills and knowledge needed for various professions.
TVET practices vary globally, reflecting cultural, economic, and educational differences (ILO, 2016). Developed countries often have well-established and comprehensive TVET systems,

while developing nations may face challenges in infrastructure and resources (EuropeanTrainingFoundation, 2020). International organizations, such as UNESCO and the International Labour Organization (ILO), actively promote the importance of TVET in sustainable development and poverty reduction, recognizing its role in empowering individuals and fostering economic growth.

2.3.3. **TVET in Africa**

African countries have recognized the pivotal role of TVET in addressing unemployment, fostering entrepreneurship, and meeting the demands of emerging industries. Efforts have been made to integrate TVET into national education systems, with a focus on practical skills development.

2.3.4. **Factors affecting TVET**

Oviawe (2018) reminds the main factors that affect TVET education. These include responsive curriculum, investment in infrastructure, ongoing evaluation of training outcomes and industry partnership; she argues that collaboration between government and private sectors can lead to improved training programs that are better aligned with industry needs. On the other hand, she highlights the main challenges that affect the TVET globally and nationally. The first challenge is the low quality of training which does not match with labor market skills demand. Another challenge is the poor quality of TVET facilities. The author also identifies the inadequacy of instructors, and content of curriculum. Consequently, these challenges lead to acquiring of low quality skills. She advocates for a synergic approach to revamping TVET to ensure that graduates are equipped with the skills necessary for the evolving job market.

The main challenges that confront TVET in Trinidad and Tobago, as Mack & White (2019) state them in their journal article, are the attrition, lack of industrial training, lack of regulation in TVET, and lack of quality teaching. As the researchers remind it, the above mentioned challenges affect the students' competence and skills acquisition because this requires students to be exposed to partials. In this research, industrial training, regulation in TVET and quality teaching were investigated among other factors that affect the practical skills acquisition in TVET in Rulindo district.

According to Kemevor & Kassah (2015), TVET is faced with a lot of challenges in Ghana. One of the challenges is the large class sizes which do not match with the training resources. Another

challenge is the outdated training facilities. As the authors emphasize, the greatest challenge of TVET in Ghana is that most parents do not have prestige of sending their children to TVET. In this research, the investigation tackled the issue of class size and training facilities. The impact of class size and training facilities was investigated as well.

In the Southern Nigeria, TVET is faced with challenges including inadequate infrastructure and equipment, inadequate capacity of internal quality assessment, brain drain, shortage of staff, inadequate funding, poor working conditions of teachers, lack of qualified teachers, inadequate collaboration between TVET and private sector institutions, and insufficient training material and resources (Ayonmike, 2014). Such challenges were investigated in this research and their effects on the acquisition of practical skills in TVET in Rulindo district were discussed as well.

In her research about the acquisition of employable skills in public TVET institutions in Nairobi County, Anindo (2016) identified five major challenges that hinder TVET institutions from producing graduates with required employable skills. Those challenges are inadequate trained teaching staff, the curriculum that is rigid and exam-oriented, training equipment that is inadequate, limited industrial attachment for trainees, and limited support from the industries. In this research, these challenges were investigated not only in public TVET institutions, but also in government-aided and private TVET institutions.

2.3.5. **Effects on TVET education**

Ra, Chin & Liu (2015) state that there will be lack of skilled workers or mismatch between skills and job if TVETs do not remove challenges that affect the skills acquisition for their learners. Bakar (2014) reports that when TVET graduates did not gain enough skills at school, they are unable to compete on the labor market with a limited number of opportunities, and this lead to increment of unemployment rate among the youths. In this research the effects of skills acquisition on labor market were also examined.

2.3.6. **TVET in Rwanda**

The Rwanda TVET Board (RTB) is responsible for implementing MINEDUC's policies in the area of TVET from level 1 to level 5 (RTB: 2021). TVET is expected to play a big role in Rwanda's economy. According to RTB strategic plan (RTB, 2021), the government of Rwanda

spotlights the contribution of human capital development in supporting the economic and social transformation of the country.

In addition, Rwanda recognizes the importance of TVET in building a workforce that is dynamic and capable to meet demand for high-skilled jobs (RTB, 2021). This is the reason why Rwanda is putting effort in strengthening TVET system. However, TVET system implementation in Rwanda is still facing some challenges.

2.3.7. **Challenges affecting TVET in Rwanda**

In its SWOT analysis (RTB, 2021), RTB identified some challenges that TVET is faced with. Those challenges include negative perception of TVET by some stakeholders and weak relevance of TVET training to labour market. RTB reports that the effects of these challenges are the low enrolment in TVET schools and producing graduates who are not in good position to compete to the high remunerative work. Kiberu B. et al (2009), in their pilot study of the situation on 4 pilot TVET institutions, report that one of the challenges that TVET is faced with is the lack of a standard curriculum. According to Hakizayezu J.D. and Maniraho J.F. (2022), the challenges faced by TVET are: training facilities are insufficient, period of industrial attachment program is very short, training is based on theory rather that practice, untrained trainers in CBT/CBA and mismatch of acquired skills with employable skills. In this study, such challenges of TVET schools in Rulindo district and their effects were investigated.

2.4.**Theoretical framework**

This study of investigating factors that affect the practical skills acquisition in Technical and Vocational Education and Training (TVET) Schools in Rulindo District was guided by the theory of experiential learning proposed by David A. Kolb (1984). This theory proposes four stages of learning cycle: concrete learning, reflective observation, abstract conceptualization and active experimentation. Kolb believes that effective learning is seen as the learner goes through this cycle.

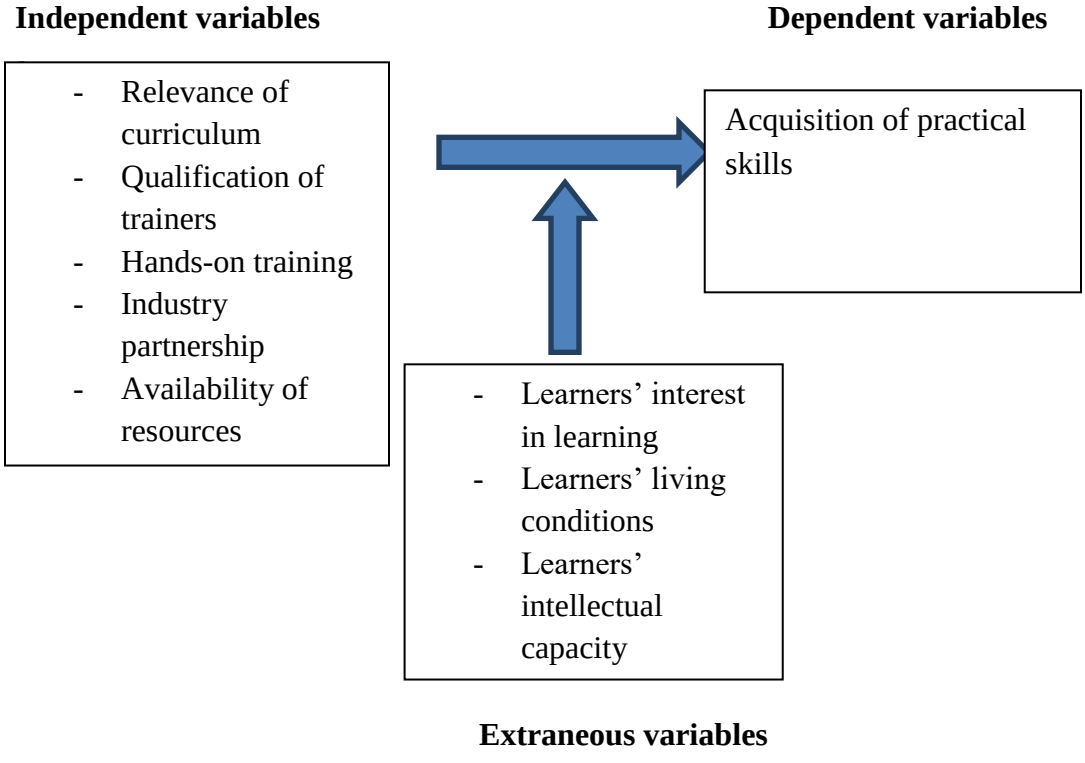
In this theory of experiential learning, Kolb (1984) reminds that knowledge results from the combination of grasping and transforming the experience. He continues that when students should actively participate in their learning, they have to develop ability to bridge the gap

between theory and practice and they can integrate learning beyond the classroom. This theory of experiential learning is applicable in TVET where learners need to have practical skills that they will use in real life situations.

2.5. **Conceptual framework**

According to the literature review, TVET is recognized and very important in playing a key role in increasing socio-economic transformation of countries. Besides, it has become imperative for TVET institutions to focus on innovative teaching and competency indicators in this 21st century (Varma & Malik, 2023). However, TVET is still faced with challenges that hinder the acquisition of employable skills in relation to the factors that affect practical skills acquisition in TVET schools. Some of those challenges include untrained trainers, insufficient practice, and uncovered curricula (Ramadan & Xiaohui, 2019). According to Ahmed (2011), shortage of textbooks and curriculum guidelines are also a hindrance to TVET quality education. All these factors and challenges on TVET schools in Rulindo district were investigated. The figure below highlights the factors that affect TVET schools.

Figure 1: Factors affecting practical skills acquisition in TVET schools



Source: Researcher (2023)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1.Introduction

This part briefly talks about the research design that was used, the target population, the sample size and sampling procedures, the instruments and methods used in data collection, the validity and reliability, data analysis techniques and the ethical consideration.

3.2.Research design/approach

Considering the nature of this study, the mixed-method was used. The mixed methods approach involves collecting, analyzing and integrating both qualitative and quantitative data in a single study (Fraenkel, Wallen, & Hyun, 2012). This method seeks to leverage the strengths of both types of data to provide a more comprehensive understanding of research questions.

In this study, a mixed method approach was used to enhance the complementarity of qualitative and quantitative data, leading to more meaningful conclusions. This method was chosen because relying on a single method would not adequately capture all the necessary information about the phenomena being investigated. Gathering insights from various participants was essential, as some data could be quantitatively measured while other information required discussion to generate qualitative insights. Qualitative data were collected during interviews with school managers. The results were compared and discussed together with quantitative data from questionnaires completed by trainers and trainees.

3.3.Target population

This research was conducted in Rulindo district. Rulindo district was chosen because, in its Development Strategy (2018-2024), the involvement of TVET schools and graduates is expected to contribute a lot to the economic development and labor market productivity (Rulindo, 2018). Yet, some challenges that inhibit the effectiveness of TVET schools are recognized. This research examined the challenges to skills acquisition in TVET schools of Rulindo district. According to Orodho A. (2004), population refers to all items or people under consideration in any field of investigation. The target population for this study comprises all school managers, trainers and trainees from all TVET schools (Level1 to Level 5) in Rulindo district. According to MINEDUC (2019), there are 14 TVET schools, 156 trainers and 2,838 trainees in Rulindo

district. Thus, the target population included all 14 school managers, 156 trainers and 2838 trainees, which makes the total of 3,008.

3.4.Sample size and sampling procedures

According to Cochran (1977), proportionate stratified sampling is a method of sampling that involves dividing the population into distinct subgroups, or strata, that are mutually exclusive and collectively exhaustive. This approach ensures that each stratum is represented in the sample in proportion to its size in the overall population. The TVET schools, where this study was conducted, were first stratified according to their categories: Private, Government Aided and Public. Other categories that were put in strata are boarding schools and day schools. In each school, respondents were stratified according to their trades. To determine the sample size, the Proportionate Stratified Sampling technique was used except for school managers because they must be at least three to make sure each category of school is represented. At least 10% of the population was sampled. The sampling fraction $\frac{n}{N}$ was used where **N** represents the total population while **n** represents 10% of the population. The following table shows how the sample size was determined.

Table 1: Sampling

Stratum	Population size	Sampling fraction	Sample size for each stratum
Trainees	2838	10/100	280
Trainers	156	10/100	16
School managers	14	NA	3
Total	**3008**		**299**

Source: The researcher (2023)

The above table shows that the total sample size was composed of 299 respondents. These included 280 trainees, 16 trainers and 3 school managers.

3.5.Data collection instruments and methods

Data collection instrument is a tool or method used to gather information for research purpose. It enables researchers to collect data systematically and consistently, ensuring that the information gathered is relevant and useful for analysis. In this research, the data collection was conducted by using questionnaires and interview schedule. The questionnaires were used to collect data from trainers and trainees. The interview schedule was used to collect data from school managers. The researcher carried out personal administration of questionnaire and interview. This means that the researcher didn't employ any research assistant.

3.6. Validity and reliability

Validity refers to how well a research tool measures what it is supposed to measure, while reliability involves the consistency of results across different study contexts (Mohajan, 2017). So, before testing the questionnaire and interview schedule variables were defined and asked the experts in area of research like the dissertation supervisor to evaluate the content of questionnaire and interview schedule so as to determine their content and validity. In addition, the use of both qualitative and quantitative methods, along with triangulation, the goal was to maximize the validity and reliability of the research instruments and the data collected.

3.7.Data analysis techniques

Descriptive statistics was used to analyse quantitative data for this study, specifically in terms of frequencies, percentages, mean and standard deviation to establish factors that affect the acquisition of practical skills. Thematic analysis was used to analyse qualitative data that had been collected through interview schedules. Both descriptive statistics and thematic analysis were used to analyse how different challenges affect the practical skills acquisition in TVET schools in Rulindo district. After analyzing the data, tables, charts and graphs were used to present findings of quantitative data. On the other hand, textual mode was used to present findings from qualitative data.

3.8.Logistical and ethical considerations

Before collecting data, the researcher ensured that all data collection instruments are valid and reliable. In addition, the researcher sought a clearance from the College of Education, University of Rwanda. After getting the clearance from the College of Education, the researcher sought

permission from the Rulindo district authority to collect data from TVET schools in this district. Moreover, the researcher sought informed consent from the respondents before distributing questionnaires or administering an interview. In addition to this, the researcher respected the anonymity of respondents by not writing their names on instruments. Finally, the researcher kept the data collection instruments in a safe and secure place to ensure the confidentiality of the information gathered from the respondents.

CHAPTER FOUR: PRESENTATION OF FINDINGS, INTERPRETATION AND DISCUSSION

4.1. Introduction

This chapter aims at presenting, analyzing and interpreting the findings of the study to achieve the research objectives and answer to the research questions. It also discusses the main findings. This study aimed at achieving the following objectives:

1. To investigate the factors that affect practical skills acquisition in TVET schools in Rulindo district.
2. To investigate the challenges faced by TVET schools in Rulindo district.

This research was guided by the following questions:

1. What are the factors that affect the practical skills acquisition in TVET schools in Rulindo District?
2. What are the challenges that are faced by TVET schools in Rulindo district?

The presentation of the findings in accordance with the research questions and objectives was done using tables, charts and textual modes of data presentation. Percentages, means and thematic analysis methods were used to analyse the data.

4.2. General information on respondents

The respondents included the trainees, trainers and school managers. They were all asked to provide general and demographic information on themselves and on their schools but some pieces of information were different depending on the type of respondent. The findings are presented as follows:

4.2.1. Information on trainees and their schools

The trainees were asked to provide information about their gender, level of study (RQF Level), sector, school status and their accommodation status.

4.2.1.1. Gender of trainees

Both male and female trainees were among the respondents. This was done to make sure that both genders are represented. The following table shows their gender statistically:

Table 2: Gender of trainees

		Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Male	182	65.0	65.0	65.0
	Female	98	35.0	35.0	100.0
	Total	280	100.0	100.0	

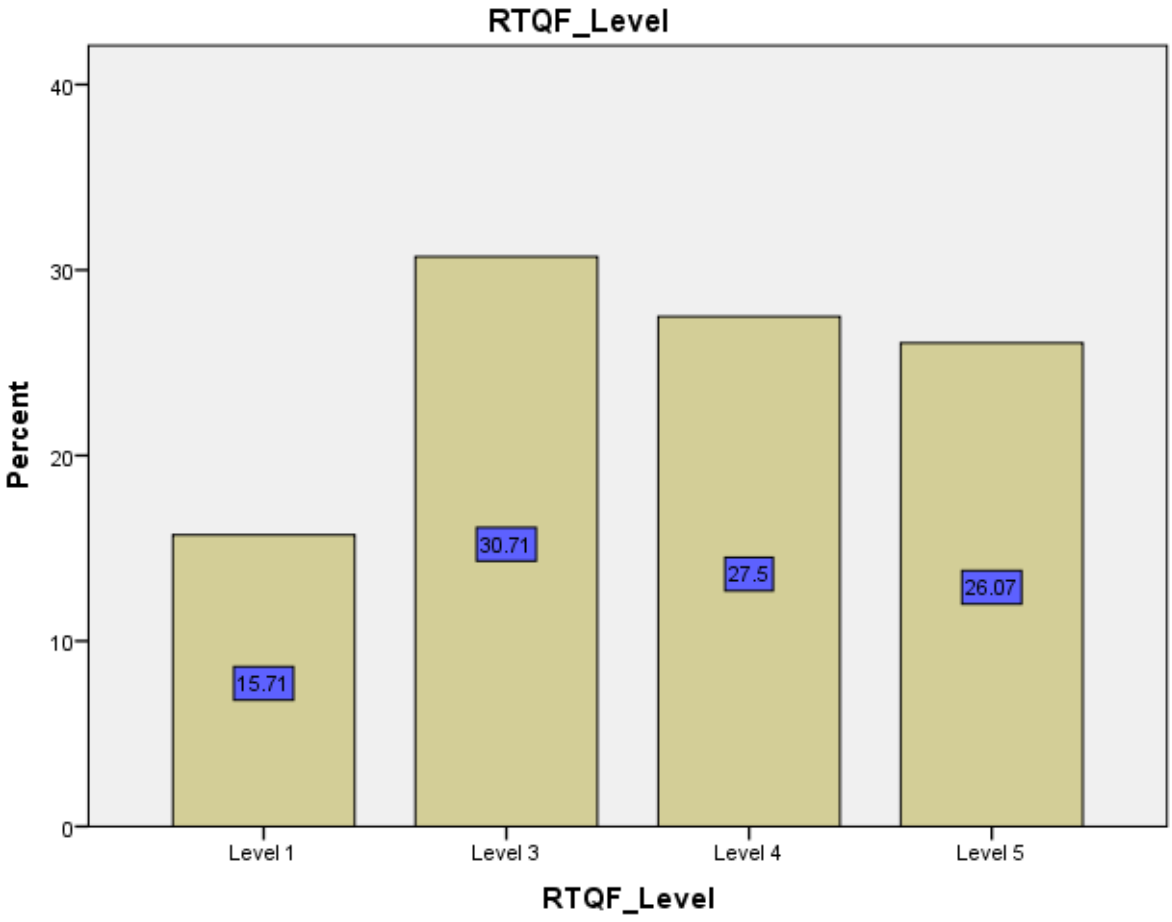
Source: Primary data (2023)

The above table shows that among 280 trainees who responded the questionnaire, 65% were male while 35% were female. The majority of respondents being males, this affected the views on factors affecting skills learning in TVET and their effects.

4.2.1.2. Trainees level of study (RQF Level)

The trainees that responded to the questionnaire were from different levels of basic TVET (Level 1 to Level 5). The following statistical data shows the RQF levels of the respondent trainees.

Figure 2: Trainees' RQF Levels



Source: Primary data (2023)

As the above figure indicates it, the respondent trainees from Level 1 are 15.7%, those from Level 3 are 30.7%, those from Level 4 are 27.5% and those from Level 5 are 26%. Looking at graph, it is noticed that there are no respondents from Level 2. This is because in Rwanda, the level 2 had not yet started when the data for this research were collected.

4.2.1.3. Trainees' sectors

The TVET schools in Rwanda are classified in ten sectors and each sector comprises different trades (MINEDUC, 2021). However, the trainees who participated in this research were from seven sectors that are in Rulindo district; these are namely Agriculture and Food Processing,

Construction and Building Services, Energy, Hospitality and Tourism, ICT and Multimedia, Transports and Logistics, and Crafts and Recreational Arts. The tabular presentation of the number of respondent trainees from each sector is given as follows:

Table 3: Trainees' Sectors

		Frequency	Percent	Valid Percent	Cumulative Percent
Sectors	Agriculture and Food Processing	37	13.2	13.2	13.2
	Construction and Building Services	134	47.9	47.9	61.1
	Energy	20	7.1	7.1	68.2
	Hospitality and Tourism	17	6.1	6.1	74.3
	ICT and Multimedia	28	10.0	10.0	84.3
	Transport and Logistics	10	3.6	3.6	87.9
	Crafts and Recreational Arts	34	12.1	12.1	100.0
	Total	280	100.0	100.0	

Source: Primary data (2023)

The above table shows that the majority of respondents are from the sector of Construction and Building Service with 47.9% whereas the lowest number of respondents is from the sector of Transport and Logistics. This is due to the fact that all the listed sectors in the table have different numbers of trainees. The sample of respondents from each sector was proportionate to number of students in the sector. The three sectors that were not represented in this study are: Technical Services, Manufacturing and Mining, and Beauty and Aesthetics. This was because these sectors were not in TVET schools in Rulindo district when this study started.

4.2.1.4. Trainees' school status

In this research, the status of schools is about whether it is public, government-aided or private. The trainees were asked to indicate the status of their schools. This was done in order to know if the trainees from schools of different status have the same views on challenges facing TVET

skills acquisition or not. The following data statistically show status of the schools at which the trainees are enrolled.

Table 4: Trainees school status

		Frequency	Percent	Valid Percent	Cumulative Percent
School status	Public	128	45.7	45.7	45.7
	Government Aided	48	17.1	17.1	62.9
	Private	104	37.1	37.1	100.0
	Total	280	100.0	100.0	

Source: Primary data (2023)

The table shown above indicates that the respondents from the public schools are 45.7%, those from the government-aided schools are 17.1% and those from private schools are 37.1%.

4.2.1.5. Trainees' accommodation status

The trainees were asked to provide information about their accommodation status. Here, the accommodation status is about whether they are boarded at school or not. This was asked with the aim to know whether trainees with different accommodation status have the same or different views on the challenges met by TVET schools and the way they affect the skills learning. The trainees' accommodation status is shown below.

Table 5: Trainees' accommodation status

		Frequency	Percent	Valid Percent	Cumulative Percent
Accommodation	Boarding	217	77.5	77.5	77.5
	Day	63	22.5	22.5	100.0
	Total	280	100.0	100.0	

Source: Primary data (2023)

The above table shows that 77.5% of the respondents are boarding trainees while 22.5% of them are day trainees.

4.2.2. Information on trainers and their schools

The trainers were asked to provide general information about their gender, educational qualification, TVET Trainer Certification, levels of study (RQF Level) in which they teach, types of module they teach, number of taught periods per week, experience in teaching in TVET, and the status and category of schools at which they teach.

4.2.2.1. Gender of trainers

The trainers who responded the questionnaire were asked to indicate their gender. The aim of doing this was to see if both male and female trainers have the same views on challenges met by TVET schools in Rulindo district and on how they impact skills learning. The trainers' genders are statistically presented as follow:

Table5: Genders of trainers

Trainers' Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	10	62.5	62.5	62.5
	Female	6	37.5	37.5	100.0
	Total	16	100.0	100.0	

Source: Primary data (2023)

As it can be seen in the above table, among the trainers who were asked to answer the research questionnaire, 62.5% of them are male whereas 37.5% of them are female. This is due to the fact that there are more male trainers than female trainers in TVET schools.

4.2.2.2. Trainers' Educational Qualification

The trainers' qualifications were also among the data that were collected. It was done in order to see if their qualifications have any impact on the skills learning in TVET schools in Rulindo district. Their qualifications are presented statically below.

Table 6: Trainers' qualification

		Frequency	Percent	Valid Percent	Cumulative Percent
Qualification	Bachelor's Degree	9	56.3	56.3	56.3
	A1 Diploma	5	31.3	31.3	87.5
	A2 Certificate	1	6.3	6.3	93.8
	Other Qualification	1	6.3	6.3	100.0
	Total	16	100.0	100.0	

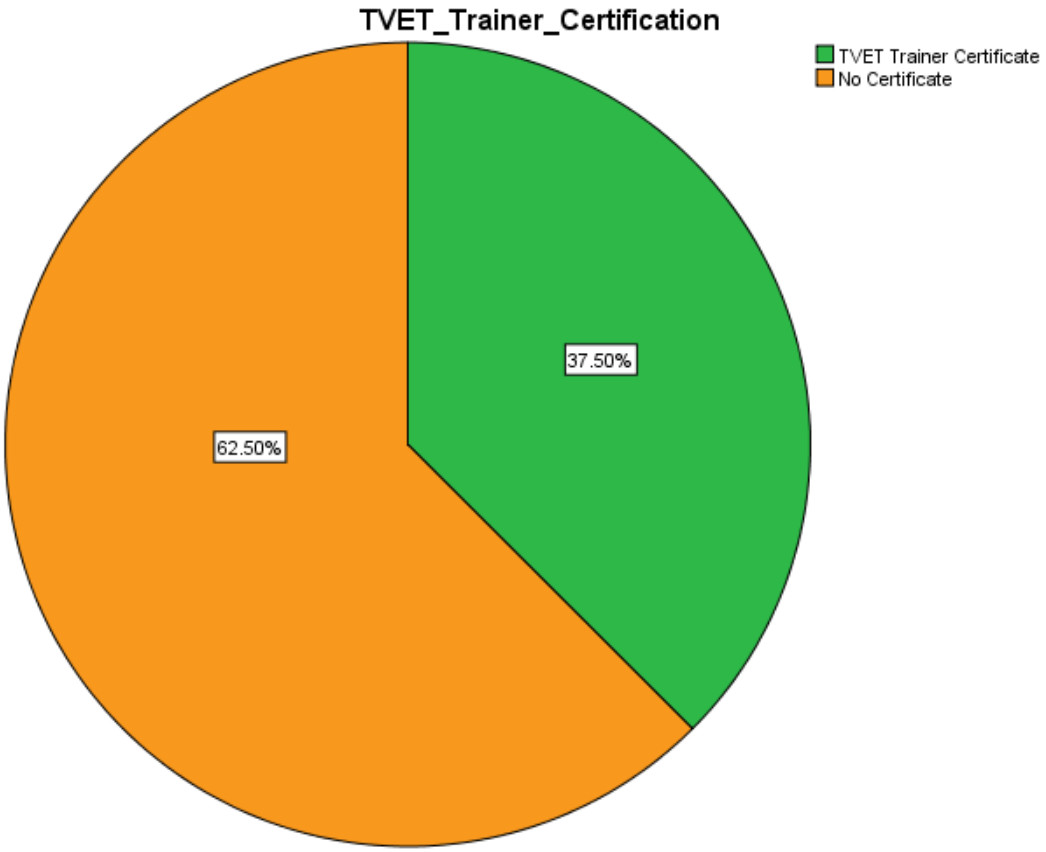
Source: Primary data (2023)

The above table which shows the TVET Trainers who responded to the research questionnaire indicates the 16 trainers were selected to answer the research questions. 56.3% of them possess a Bachelor's Degree, those with a Diploma (A1) are 31.3%, those with A2 Certificate (secondary education) are 6.3% and the remaining 6.3% have other certificates than the ones specified above. These include those with qualification below A2.

4.2.2.3. TVET Trainer Certification

On the questionnaire, the trainers were asked to provide information on their TVET Trainer Certificates. According to the Rwanda TVET system, there are three types of TVET Trainer Certificates aimed at equipping TVET Trainers with pedagogical competences. Those are TVET Trainer Certificate, Senior TVET Trainer Certificate and Master Trainer Certificate and they are one after another respecting their vertical mobility chart. They are among other Certificates offered by RTTI (MINEDUC, 2023). However, the trainers were only asked if they have a TVET Trainer Certificate or a Senior TVET Trainer Certificate. The Master Trainer was not considered in this study because so far it hasn't been awarded in Rwanda. Their answers on whether they have either of these TVET Trainer certificates are presented below.

Figure 3: TVET Trainer Certification



Source: Primary data (2023)

The above chart shows that among 16 trainers who were asked to give information about their TVET Trainer Certification, only 37.5% of them are Certified TVET trainers. 62.5 of them have no TVET Trainer Certificate.

4.2.2.4. Trainers' taught levels

The trainers were requested to give information on the levels in which they teach. This had the purpose of seeing whether the challenges met in TVET schools in Rulindo district were different

depending on the levels in which they teach. The levels in which they teach are shown as follows:

Table 7: Taught levels

		Responses		Percent of Cases
		N	Percent	
Trainers Taught Levels	Level1	5	9.4%	31.3%
	Level3	16	30.2%	100.0%
	Level4	16	30.2%	100.0%
	Level5	16	30.2%	100.0%
Total		53	100.0%	331.3%

Source: Primary data (2023)

The above table which shows the RQF levels in which the respondent trainers teach indicates that all 16 trainers teach in Level 3, Level4 and Level 5. It is shown that only 5 (31.3%) of them teach in Level 1. This is due to the fact that the RQF Level 1 is not as spread in TVET schools as L3, L4, and L5.

4.2.2.5. Types of taught modules

The modules taught in TVET schools are categorised in three types: specific modules, general modules and complementary modules. However, for the purpose of this study, they were classified into two categories: specific modules, and general and complementary modules. This question about the type of taught modules was asked in order to check if the challenges met in skills learning in TVET schools are the same in all modules or they differ depending on the type of module. The following statistical presentation shows how the trainers responded on the types of modules they teach.

Table 8: Trainers' types of taught modules

		Responses		Percent of Cases
		N	Percent	
Types of Modules Taught	Specific Modules	12	57.1%	75.0%
	General and Complementary Modules	9	42.9%	56.3%
Total		21	100.0%	131.3%

Source: Primary data (2023)

The table that is shown above states the types of taught modules by trainers. It is seen that 57.1%of the respondent trainers teach Specific Modules and 42.9% teach General and Complementary Modules. The respondents were 16. However, the above table is showing 21 because some trainers teach both Specific Modules and General and Complementary Modules.

4.2.2.6. Taught periods per week

Each trainer was asked to indicate the number of periods he/she teaches in a week. The purpose of this question was to know if the number of periods a trainer teaches has any impact on the learning skills in TVET schools. The number of periods taught per week by each trainer who responded is presented below.

Table 9: Trainer's Periods taught per week

		Frequency	Percent	Valid Percent	Cumulative Percent
Periods taught per week	Less than 30	1	6.3	6.3	6.3
	Between 30 and 40	6	37.5	37.5	43.8
	Above 40	9	56.3	56.3	100.0
	Total	16	100.0	100.0	

Source: Primary data (2023)

The above table shows the number of periods that each respondent trainer teaches per week. As the figures show it, 6.3% of the respondent trainers teach less than 30 periods a week, 37.5% teach between 30 and 40 periods, and 56.3% teach above 40 periods per week.

4.2.2.7. Trainers' teaching experience

In this research, the trainers also provided information about their experience in teaching in TVET. The following table indicates the teaching experience (expressed in years) of each respondent trainer.

Table 10: Trainers' teaching experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Teaching experience	Less than 3 years	3	18.8	18.8	18.8
	Between 3 and 5 years	7	43.8	43.8	62.5
	Between 5 and 10 years	6	37.5	37.5	100.0
	Total	16	100.0	100.0	

Source: Primary data (2023)

The table given above is showing the trainers experience in teaching in TVET. It shows that 18.8% of the respondent trainers have an experience of teaching which is less than 3 years is. 43.8% have the teaching experience ranging between 3 and 5 years, and 37.5 have the experience which is between 5 and 10 years.

4.2.2.8. Trainers' school status

In this research, the status of schools is about whether it is public, government-aided or private. The trainers were asked to indicate the status of their schools. The following data statistically show status of the schools at which the trainers teach.

Table 11: Trainers' school status

		Frequency	Percent	Valid Percent	Cumulative Percent
School Status	Public	6	37.5	37.5	37.5
	Government Aided	4	25.0	25.0	62.5
	Private	6	37.5	37.5	100.0
	Total	16	100.0	100.0	

Source: Primary data (2023)

The table which shows the trainers school status is given above. It is seen that 37.5% of respondent trainers teach in public schools. 25% of them teach in government-aided schools while 37.5 of them teach in private schools.

4.2.2.9. Trainers' school category

The trainers were asked to provide information about the category of the schools at which they teach. Here, the category of the school is about whether it is a boarding school or day school. This was asked with the aim to know whether the challenges met by TVET schools and the way they affect the skills learning are the same in both boarding and day school or whether they are different. The categories of the schools at which the trainers teach are shown below.

Table 12: Trainers school category

		Frequency	Percent	Valid Percent	Cumulative Percent
School Category	Boarding School	13	81.3	81.3	81.3
	Day School	3	18.8	18.8	100.0
	Total	16	100.0	100.0	

Source: Primary data (2023)

The above table shows that 81.3% of respondent trainers teach in boarding schools whereas 18.8% teach in day schools. This indicates that TVET day schools are still few compared to boarding schools.

4.2.3. Information on school managers and their schools

The school managers were interviewed and they provided general information about their educational qualification, levels of study (RQF Level) they have at school, sectors accredited at their schools, experience in leading TVET schools, and the status and category of schools they are leading.

4.2.3.1. Qualification of school managers

In this research, three school managers were interviewed. They were asked to give information about their qualification in order to know if their qualifications have any relationship with their views on the challenges confronting TVET schools in Rulindo district. All the three school managers that were asked to provide information on their qualification hold a Bachelors Degree as it is shown as below:

Table 13: School Mangers' Qualifications

Highest Qualification	Frequency	Percent	Valid Percent	Cumulative Percent
Bachelor's Degree	3	100.0	100.0	100.0

Source: Primary data (2023)

The table shows that all the three interviewed school managers hold a Bachelor's Degree. This is their highest qualification. None of them has less than a Bachelor's degree.

4.2.3.2. RQF levels

The interview to the school managers requested them to indicate the RQF levels (class levels) that they have at their schools. As this research is about only the basic TVET, the levels at their schools range between Level 1 and Level 5. This information about the RQF levels at the schools of the interviewed school managers is presented below:

Table 14: RQF Levels at School

		Responses		Percent of Cases
		N	Percent	
RQF Levels at School	Level1	2	18.2%	66.7%
	Level3	3	27.3%	100.0%
	Level4	3	27.3%	100.0%
	Level5	3	27.3%	100.0%
Total		11	100.0%	366.7%

Source: Primary data (2023)

The interviewed school managers provided information about the RQF levels that are accredited at their schools. As the above table shows it, all the three school managers have L3, L4 and L5 at their schools. Two of them have L1 at their schools.

4.2.3.3. Sectors

Each interviewed school manager provided information about the sectors that are accredited at his school. The sectors accredited at each school of the interviewed school manager are statistically presented as follow:

Table 15: Sectors at school

		Responses		Percent of Cases
		N	Percent	
Sectors at school	Agriculture and Food processing	2	20.0%	66.7%
	Construction and Building services	2	20.0%	66.7%
	Hospitality and tourism	2	20.0%	66.7%
	ICT and Multimedia	1	10.0%	33.3%
	Transport and Logistics	1	10.0%	33.3%
	Crafts and Recreational Arts	2	20.0%	66.7%
Total		10	100.0%	333.3%

Source: Primary data (2023)

The table that is shown above presents the sectors that are at schools whose school managers were interviewed in this research. Three school managers were interviewed, which means the data in the above table are about three schools. The sectors of Agriculture and Food Processing, Construction and Building Services, Hospitality and Tourism and Crafts and Recreational Arts are at two schools out of three. ICT and Multimedia and Transport and Logistics are each at one school out of three.

4.2.3.4. Experience of School Managers

The school managers were asked to indicate their experience in leadership and/or management of TVET schools. Their experiences are shown below:

Table 16: School Mangers Experience in Leadership

		Frequency	Percent	Valid Percent	Cumulative Percent
School Managers Experience	Between 3 and 5 years	1	33.3	33.3	33.3
	Between 5 and 10 years	1	33.3	33.3	66.7
	Above 10 years	1	33.3	33.3	100.0
	Total	3	100.0	100.0	

Source: Primary data (2023)

The school managers' experience in leadership is portrayed in the above table. One school manager has an experience of three to five years, another has between five and ten years and the remaining has an experience of more than ten years.

4.2.3.5. School status

The school managers provided information regarding the status of their schools. In this research, the status of schools is about whether it is public, government-aided or private. The information provided by the school managers about the status of their schools is presented below.

Table 17: School Managers school status

		Frequency	Percent	Valid Percent	Cumulative Percent
School Status	Public	1	33.3	33.3	33.3
	Government Aided	1	33.3	33.3	66.7
	Private	1	33.3	33.3	100.0
	Total	3	100.0	100.0	

Source: Primary data (2023)

In the research interview, the school managers who answered the research questions were from schools with different school status: public, government aided, and private.

4.2.3.6. School category

The schools whose school managers were interviewed are classified into two categories. They are either boarding schools or day schools. The categories of these schools are shown as follow.

Table 18: School Managers School Category

		Frequency	Percent	Valid Percent	Cumulative Percent
School Category	Boarding School	2	66.7	66.7	66.7
	Day School	1	33.3	33.3	100.0
	Total	3	100.0	100.0	

Source: Primary data (2023)

As the above table shows, the two school managers that were interviewed are leading boarding schools while one is from a day school.

4.3. Factors affecting practical skills acquisition in TVET schools

The trainers and the school managers were asked to show the main factors that affect practical skills acquisition in TVET schools in Rulindo district. These data were gathered using Likert scale questionnaire administered to 16 trainers and interviews administered 3 school managers.

The main factors that affect practical skills acquisition in TVET schools include: relevance of the curriculum, qualification of trainers, hands-on training, industry partnership and availability of resources. The main factors that affect practical skills acquisition in TVET schools in Rulindo district and the extent to which the trainers believe in them are shown in the table below.

Table 19: Factors affecting practical skills acquisition

Factors	**SD**		**D**		**N**		**A**		**SA**	
	No	**%**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**
Relevance of curriculum	0	0.0	0	0.0	0	0.0	3	18.8	13	81.3
Qualification of Trainers	0	0.0	0	0.0	0	0.0	4	25.0	12	75.0
Hands-on Training	0	0.0	0	0.0	0	0.0	0	0.0	16	100.0
Industry Partnership	0	0.0	0	0.0	2	12.5	1	6.3	13	81.3
Availability of Resources	0	0.0	0	0.0	0	0.0	0	0.0	16	100.0

Source: Primary data (2023)

In the table 19 above, all the selected trainers (100% SA) believe that hands-on Training and availability of resources are among the main factors that affect practical skills acquisition in TVET schools. Above 80% (81.3 SA) that relevance of curriculum and industry partnership are among the top factors that affect practical skills acquisition in TVT schools. On the other hand, 75% of the respondents strongly agree that qualification of trainers is also among the main factors that affect practical skills acquisition. As the above table shows, on one disagreed or strongly disagreed with any of the presented factors that affect practical skills acquisition in TVET schools in Rulindo district. The above presented factors are not different from the ones mentioned by the school managers during the interview.

4.4. Challenges that affect practical skills acquisition in TVET schools in Rulindo district

The challenges that affect the practical skills acquisition in TVET schools in Rulindo district are in three categories. The first category is concerned with the challenges that affect trainees, the second category is about challenges that affect trainers, and the third category is concerned with the challenges that affect school managers.

4.4.1. Challenges that affect trainees

The common challenges that affect the trainees in their skills learning are: lack of adequate materials, tools and equipment, insufficient competent trainers, insufficient practice, lack of trainees' manuals, inadequate school infrastructure, and many modules per level and uncovered curricula. The table below presents the findings on the above mentioned challenges that affect the trainees.

Table 20: Challenges that affect trainees

		Responses		Percent of Cases
		N	Percent	
Challenges affecting trainees	Lack of Adequate materials, tools, and equipment	274	16.1%	97.9%
	Insufficient competent, trainers	149	8.7%	53.2%
	Insufficient Practice	241	14.1%	86.1%
	Lack of Trainees Manual	280	16.4%	100.0%
	Inadequate school infrastructure	264	15.5%	94.3%
	Many modules per level	258	15.1%	92.1%
	Uncovered curricula	240	14.1%	85.7%

Total	1706	100.0%	609.3%

Source: Primary data (2023)

As the above table displays, the most common challenges to all respondents (100%) is the lack of trainees' manuals. This shows how it is difficult for them to learn, where the trainers have to conduct their own research to find the content.

It was also found that 97.7% of respondents recognize the lack of adequate materials, tools and equipment. This results in having insufficient practical sessions because materials, tools and equipment are very crucial in practical skills acquisition. The table shows that 86.1% of respondents said that they do not do sufficient practice at school.

The table reveals that 55.2% of respondents said that they have insufficient competent trainers. Obviously, this affects the learning because no one can give what he does not have.

The table shows that 94.3% are affected by inadequate school infrastructure. This also hinders their learning of practical skills.

92.1% of the respondents said that they have many modules per level. The researcher found that there are some trades which have more than 20 modules to be taught in one level. This is difficult for them to master the content from all these modules. Consequently, some modules are not finished. 85.7% of respondents said that some modules are not finished because they are many or have too much content which not proportional to the allocated time.

4.4.2. Challenges that affect trainers

The common challenges that affect the TVET trainers are: lack of training manuals, mismatch between content length and allocated time, insufficient materials, tools and equipment for practical sessions, overcrowded classes, and inadequate school infrastructure. The table below presents the responses of trainers regarding these challenges that affect them.

Table 21: Challenges that affect trainers

		Responses		Percent of Cases
		N	Percent	
Challenges affecting Trainers	Lack of Training Manuals	16	23.9%	100.0%
	Mismatch between content length and allocated time	13	19.4%	81.3%
	Insufficient materials, Tools and Equipment For Practice	12	17.9%	75.0%
	Overcrowded Classes	12	17.9%	75.0%
	Inadequate School Infrastructure	14	20.9%	87.5%
Total		67	100.0%	418.8%

Source: Primary data (2023)

As the table shows, 100% of trainers who responded the questionnaire said that they don't have training manuals (Trainee book and trainer's guide). One would imagine how teaching without trainee's book or trainer's book (guide) looks like. It is not easy because every trainer has to look for his/her own content.

The table also shows that 81.3% of respondents said that they are challenged by mismatch between content and time allocated. The content in some modules is too much compared to the time allocated to the module while in other modules it is too short compared to the allocated time.

Despite the fact that TVETs aim at equipping trainees with practical skills, 75% of trainers responded that they have a problem on not having sufficient materials, tools and equipment for practical sessions. This affects the learning because they teach more theory than practice.

In addition, the trainers said that one of the challenges they are faced with is to teach overcrowded classes. In some schools, there are some classes that have more than 60 trainees. This becomes difficult for the trainers to manages those classes and cater for every trainee while teaching.

Inadequate school infrastructure is another hindrance to the trainers. 87.5% of the trainers who responded said the inadequate school infrastructure affect their teaching.

4.4.3. Challenges that affect school managers

Like trainees and trainers, school managers also presented the challenges that affect practical skills acquisition in their schools. The common challenges presented by the interviewed school managers include inadequate infrastructure, difficulty in finding IAP companies for trainees, and delay to have new trainers when they need them.

4.5. Effects of challenges on practical skills acquisition

The above presented challenges have effects on both trainees and trainers. They affect the trainees in their learning of practical skills. They also affect the trainers teaching.

4.5.1. Effects on trainees

The following table presents the effects of those challenges on the trainees. The main effects on the trainees are: limited acquisition of employable skills, difficulty in finding Industrial Attachment Program (IAP) Company and poor performance in IAP.

Table 22: Effects on trainees

		Responses		Percent of Cases
		N	Percent	
Effects on trainees	Limited acquisition of employable skills	257	39.2%	92.4%
	Difficult to find IAP	212	32.3%	76.3%
	Poor Performance in IAP	187	28.5%	67.3%
Total		656	100.0%	236.0%

Source: Primary data (2023)

As the above table shows, 92.4% of trainees who responded said that the challenges they face lead to limited acquisition of employable skills. This means that they do not acquire as enough skills as they would if the challenges were not there.

Furthermore, the table shows that 76.3% of trainees have difficulty in finding an IAP company. This is due to the fact that they do not have enough skills because they do not do enough practical sessions at school. As a consequence, it is not easy for them to find an IAP company because some companies are not willing to provide IAP opportunity to trainees who do not have enough skills.

The table shows also that 67.3% of trainees perform poorly in IAP. This is a result of not having done enough practice at school.

4.5.2. Effects on trainers

The aforementioned challenges that the TVET trainers are faced with have effects on their teaching. The main effects they presented are: it takes them much time to search for the content, they do not have enough time to prepare sessions plans, they deliver different contents to their trainees, it is not easy for them to cover the curriculum, they do not have enough time for class practice, and it is difficult to assess all learners. Their responses regarding these effects are presented in the table below.

Table 23: Effects on trainers

		Responses		Percent of Cases
		N	Percent	
Effects on Trainers	It takes much Time to search for the content	16	19.8%	100.0%
	Insufficient Time to prepare session plans	14	17.3%	87.5%
	Taught content may differ from other TVET schools	14	17.3%	87.5%

	Not easy to cover the curriculum	13	16.0%	81.3%
	Insufficient Practice	12	14.8%	75.0%
	Difficult to Assess all learners	12	14.8%	75.0%
Total		81	100.0%	506.3%

Source: Primary data (2023)

As the table above presents it, 100% of trainers who responded said that it takes them much time to search for the content. This is because they are not provided with training manuals. So, every trainer has to search for his/her own contents, which is not really easy.

The table also reveals that 87.5% of trainers said that they do not have sufficient time for preparing session plans. This is because most of the time is spent on searching the content. It means that many of them go to classrooms without session plans.

As each trainer has to search for content on his or her own, the taught content may differ. 87.5% of respondents said that the content they teach may differ from the content taught by their fellow trainers in other TVET schools.

The table also shows that 81.3% of trainers responded that it is not easy to cover the curriculum. This is the effect of mismatch between the length of the curriculum and the time allocated. If the curriculum is not finished, it means that there are skills that the trainees have not acquired, which will affect them negatively in their jobs.

The trainers also said that they do not teach sufficient practice. This was said by 75% of the respondents. This lack of sufficient practice at school is due to different challenges presented earlier. These include lack of sufficient materials, tools and equipment and inadequate school infrastructure. Consequently, insufficient practice leads to insufficient skills imparted in trainees.

Assessment is one of the crucial parts in the teaching and learning process. Unfortunately, 75% of trainers responded that it is difficult for them to assess all trainees. This is due to different challenges, including overcrowded classes. If the trainer does not assess all trainees, it will not be possible to know if the learning objectives have been achieved.

4.5.3. Effects on school managers

As the school managers revealed, the above mentioned challenges have negative effects on the trainees learning. For example, one of the school managers said that classes are overcrowded due to insufficient classrooms. He continued that this hinders the learning because it is difficult for the trainers to reach and help each trainee. Another effect they talked about is that some trainees do not get enough skills from IAP because they do not find companies that are good enough to equip them with those skills. The school managers also showed how the delay of getting new trainers affects negatively the teaching and learning process. New trainers are usually needed when they have to replace those who resigned for different reasons or at the beginning of a new academic year when there is a new trade or the number of classrooms has increased. The school managers said that when there is a delay of getting a new trainer, there is risk of not finishing the curriculum, and this is a serious hindrance to the learning process.

4.6. Recommendations/suggestions by school managers

When asked to provide recommendations or suggestions on how to avoid challenges faced with and their effects on the teaching and learners process, the school managers gave them as follows.

The school managers suggested that the government and TVET education stakeholders should provide sufficient and adequate infrastructure in order to make the learning environment more conducive.

The school managers recommended that the IAP shouldn't be done at the same time for all levels because if all trainees go to the IAP at the same time, they do not have enough companies that can accommodate all of them. One school manager suggested that the trainees from the sector of Construction and Building Services should do the IAP during the summer because it is the time when there are many construction and building works in many parts of the country. He added that this would also be better because they will use this holiday period which will not coincide with the teaching and learning at school.

For the challenge of not getting new trainers on time, the school managers suggested that the Rwanda TVET Board (RTB) should administer the recruitment tests for trainers during the school end year holiday and make sure the waiting list of trainers is available before the

beginning of the next academic year. This will decrease the time it takes to recruit a new trainer or replace a trainer who has resigned.

4.7. Other comments by school managers

The school managers were also asked if they had any other comments they would like to share with the researcher. One of them said that, despite some challenges that are faced with, he recognizes the importance of TVET schools in the development of the country. He gave n example that many trainees get employed easily compared to those who graduate from general education.

The school managers also revealed that many people have now understood that TVET is not for those who are not able to do sciences. They said that in the past, people thought that TVET was for those who cannot do science, but they have changed their mindsets.

DISCUSSION OF KEY FINDINGS

This research adopted a parallel mixed design to investigate the factors and the challenges that affect practical skills acquisition in TVET schools in Rulindo district and how those challenges hinder the TVET schools in Rulindo district. The participants of this study were trainees, trainers and school managers selected from TVET schools in Rulindo district. The data were gathered using questionnaires administered to 280 trainees, the Likert scale questionnaires administered to 16 trainers and interviews administered to 3 school managers.

For the first research question on investigating the factors that affect practical skills acquisition in TVET schools in Rulindo district, the findings showed the main factors that include: relevance of curriculum, qualification of trainers, hands-on training, industry partnership and availability of resources. This was indicated in the table 19 which shows that none of the respondents disagree with any of the factors that affect the practical skills acquisition in TVET schools. All trainers (100%) who responded the questionnaire believe that relevance of curriculum, qualification of trainers; hands-on training and availability of resources are the top key factors that affect practical skills acquisition in TVET schools. 13 out of 16 respondents (81.3%) agree that industry partnership is also among the main factors that affect practical skills acquisition in TVET schools. In addition, all school managers that were interviewed also mentioned the above same factors as the one that most affect the practical skills acquisition in TVET schools in

Rulindo district. These findings are in line with factors highlighted by Nugraha et al. (2020) who noted that the main factors that affect TVET schools include relevant curriculum and industry partnership. Nor are these findings different from those found by Oviawe (2018). The factors she posits include responsive curriculum, investment in infrastructure and industry partnership.

For the second research question which was examining the challenges that TVET schools in Rulindo district are faced with, the main challenges that affect TVET schools, as they were highlighted by trainees and trainers, are shown in table 20 and table 21. Those challenges are: (a) inadequate materials, tools and equipment, (b) insufficient competent trainers, (c) lack of training manuals, (d) inadequate school infrastructure, (e) overcrowded classes, (f) many modules per level and (g) uncovered curricula. For example, 97.9% of respondents presented the challenge of not having adequate materials, tools and equipment. 86.1% claimed not to do sufficient practice at school. 94.3% revealed the problem of inadequate school infrastructure. These are just some examples picked from the above mentioned tables. In addition to these challenges highlighted by trainees and trainers, the schools managed who were interviewed added that there is also a difficulty in finding IAP for trainees and there is a delay of getting new trainers on time when they need them.

Some of these challenges are similar to the ones presented by Oviawe (2018). The challenges she mentioned include poor quality of TVET facilities, inadequacy of instructors, and content of curriculum. She reminds that all these challenges lead to acquiring low quality skills. These challenges can also be matched with ones faced by TVET in Ghana (Kemevor & Kassah, 2015), which include the large class size and outdated training facilities. The same challenges were also found in Southern Nigeria, where TVET is faced with inadequate infrastructure and equipment, shortage of staff, inadequate funding, lack of qualified teachers, inadequate collaboration between TVET and private sector institutions, and insufficient training material s and resources (Ayonmike, 2014) . Similar challenges had also been found in Nairobi county (Anindo, 2016) . These include inadequate trained teaching staff, rigid curriculum, inadequate training equipment, and limited industrial attachment. Finally, the same challenges had also been identified to hinder TVET in Rwanda. Those are: insufficient training facilities, short period for industrial attachment program, and trainers who are not trained in CBT/CBA (Hakizayezu & Maniraho, 2022).

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. Introduction

This chapter presents the summary of the findings, conclusion and recommendations. The purpose of this study was to investigate the factors that affect TVET schools in Rulindo district and the challenges that affect the acquisition of practical skills in these schools. From this purpose, two objectives were formulated as follows: i) To investigate the factors that affect TVET schools in Rulindo district; ii) To investigate how the challenges can influence the acquisition of practical skills in TVET schools in Rulindo district. To achieve these objectives, two research questions were formulated to guide this study. The research questions were stated as follows: i) What are the factors that affect the practical skills acquisition in TVET schools in Rulindo District? ii) What are the challenges that affect the practical skills acquisition among TVET schools in Rulindo district? In order to answer these research questions, questionnaires and interview schedule were used to collect data from a sample comprising 280 trainees, 16 trainers and 3 school managers from TVET schools in Rulindo district. Data were analyzed using descriptive statistics. Thematic analysis was used to analyze qualitative data. The findings were presented in tables, texts and charts. Therefore, this chapter summarizes the findings and provides conclusions and recommendations accordingly.

5.2. Summary of the findings

This part summarizes the findings of this study based on the objectives and research questions that guided this study.

5.2.1. Factors that affect practical skills acquisition in TVET schools in Rulindo district

Trainers and school managers were asked to highlight the main factors that affect TVET schools in Rulindo district. In this research, five main factors that affect practical skills acquisition in TVET schools in Rulindo district were found. These are: (1) relevance of curriculum, (2) qualification of trainers, (3) Hands-on training, (4) industry partnership, and (5) availability of resources. All trainers (100%) who responded the questionnaire strongly agreed with hands-on skills and availability of resources to be among the main factors that affect practical skills acquisition in TVET schools. 81.3% strongly agreed on relevance of curriculum and on industry

partnership to be among the main factors, while 75.0% strongly agreed on qualification of trainers to be among the main factors that affect TVET schools in Rulindo district.

5.2.2. Challenges that affect practical skills acquisition in TVET schools in Rulindo district

According to the findings of this study, there is a lack of training manuals for both trainees and trainers. All trainees (100%) who responded said that they do not have trainee's manuals and the trainers (100%) also responded that they do not have trainer's manuals. The trainees also revealed other challenges that affect their acquisition of practical skills. Those challenges are presented as follows: lack of adequate materials, tools and equipment (97.09% of respondents); insufficient competent trainers (53.2% of respondents); insufficient practice (86.1% of respondents); inadequate school infrastructure (94.3% of respondents); many modules per level (92.1% of respondents) and unfinished curricula (85.7% of respondents).

Apart from the lack of trainer's manuals, the trainers who responded the questionnaire mentioned the following challenges that affect the trainee's acquisition of practical skills: mismatch between content length and allocated time (81.3% of respondents); insufficient materials, tools and equipment for practice (75% of respondents); overcrowded classes (75% of respondents); inadequate school infrastructure (87.5% of respondents).

According to the school managers, the main challenges that affect the practical skills acquisition in TVET schools in Rulindo district include inadequate infrastructure, difficulty in finding IAP for trainees and delay in getting new trainers.

5.2.3. Effects on the acquisition of practical skills

The findings of this study disclose the effects of the above discussed challenges on the acquisition of practical skills. The trainees who responded to the questionnaire revealed three main effects; 92.4% said that they get limited acquisition of employable skills, 76.3% have difficulty to find IAP companies and 67.3% reported that their performance in IAP is poor.

The trainers also talked about the effects, where 100% said that it takes them much time to search for the content, 87.5% said that they do not have sufficient time to prepare session plans, 87.5% revealed that the content they deliver may differ from other TVET schools, 81.3% said that it is not easy to finish the curriculum, 75% said that the practice they teach is insufficient and 75% said that it is difficult to assess all trainees.

The effects presented by the school managers are that some classes are overcrowded due to insufficient infrastructure, some trainees do not get enough skills from IAP and some trainers do not cover the curriculum.

5.3. Conclusion

The findings of this study revealed the main factors that affect practical skills acquisition in TVET schools in Rulindo district. The main factors found by this study are: relevance of curriculum, qualification of trainers, hands-on training, industry partnership and availability of resources. The research also revealed some challenges that affect the TVET schools in Rulindo district. The common challenges that hinder the acquisition of practical skills in TVET Schools in Rulindo district include the following: inadequate materials, tools and equipment; insufficient competent trainers, insufficient practical sessions; lack of training manuals; inadequate school infrastructure; many modules per level; unfinished curricular, difficulty in finding IAP companies and delay in getting new trainers when needed. All these factors result in insufficient acquisition of practical employable skills, and this affect graduates. However, the importance of TVET schools is recognized and suggestions to improve the learning in TVET schools are provided.

5.4. Recommendations

From the findings of this study and the conclusion made, the following recommendations were made:

i) The Ministry of Education and other stakeholders in TVET education should provide enough and adequate school infrastructures.

ii) Materials, tools and equipment should be availed on time to ease the acquisition of practical skills.

iii) RTB should prepare both Trainee Manuals and Trainers Manuals for all trades and all levels.

iv) A continuous professional development (CPD) program should be put in place and done regularly to increase the competence of TVET trainers.

v) Schools should be given new trainers as quickly as possible when in need in order to avoid any risk of not covering the curricula.

vi) Some modules should be combined and be taught along the whole year.

vii) The time allocation for each module should be done depending on the length of the content in the module.

viii) The Government should encourage more companies to provide trainees with IAP.

5.5. Suggestions for further research

The findings of this study are not exhaustive to improve the acquisition of practical skills in TVET. So, the following recommendations for further research were made:

i) As this study focused on TVET schools in Rulindo district, the findings cannot be generalized to TVET schools all over the country. So, this study can be replicated to investigate the factors that affect TVET schools and their effects on practical skills acquisition in other districts.

ii) In addition, this study was limited to basic TVET (level 1 to level 5). Therefore, similar studies should be carried out in other levels (Level 6 to level 8) to determine whether they face the same challenges and effects in acquiring practical skills.

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APPENDICES

Appendix 1: Questionnaire for trainees

Dear Respondent,

I am a student at the University of Rwanda, College of Education, Department of Foundations, Management and Curriculum Studies. I am currently undertaking a research on "**Factors affecting Practical skills acquisition in Technical and Vocational Education and Training (TVET) Schools in Rwanda: The case of Rulindo District"** in fulfillment of the requirements for the Master's Degree in Curriculum and Instruction. You have been selected to be part of this research. You are kindly requested to complete all parts of this questionnaire.

I assure you that your answer will be treated with confidentiality and will be used only for the purpose of this research.

For any clarification on this questionnaire, do not hesitate to contact me on 0783130195 or email: rjdbigbrother1985@gmail.com.

RIKUNZE Jean Damascene

Section A: General information on student and school

1. Gender: Male ☐ Female ☐
2. RTQF Level: 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐
3. Sector:
   a. Agriculture and Food Processing ☐
   b. Construction and Building Services ☐
   c. Energy ☐
   d. Hospitality and Tourism ☐
   e. ICT and Multimedia ☐
   f. Transport and Logistics ☐
   g. Crafts and Recreational Arts ☐
4. School status: Public ☐ Government aided ☐ Private ☐
5. Accommodation Status: Boarding ☐ Day ☐

Section B: What challenges affect skills acquisition in your school (select all that apply)?

1. Lack of adequate materials, tools and equipment ☐
2. Insufficient competent trainers ☐
3. Insufficient practice ☐
4. Lack of trainee's manuals ☐
5. Inadequate school infrastructure ☐
6. Many modules per level ☐
7. Unfinished curricula ☐
8. Others (specify): …. ☐ ……..

Section C: How do the above mentioned challenges affect your skills acquisition? (select all that apply)

1. Limited acquisition of employable skills ☐
2. Difficult to find an IAP company ☐
3. Poor performance in IAP ☐
4. Others(specify): ☐

   ……

   ……

   ……

Appendix 2: Questionnaire for trainers

Dear Respondent,

I am a student at the University of Rwanda, College of Education, Department of Foundations, Management and Curriculum Studies. I am currently undertaking a research on "**Factors affecting Practical skills acquisition in Technical and Vocational Education and Training (TVET) Schools in Rwanda: The case of Rulindo District"** in fulfillment of the requirements for the Master's Degree in Curriculum and Instruction. You have been selected to be part of this research. You are kindly requested to complete all parts of this questionnaire.

I assure you that your answer will be treated with confidentiality and will be used only for the purpose of this research.

For any clarification on this questionnaire, do not hesitate to contact me on 0783130195 or email: rjdbigbrother1985@gmail.com.

RIKUNZE Jean Damascene

Section A: General information on trainers (teachers) and school

1. Gender: Male ☐ Female ☐
2. Highest Qualification:
   a) PhD ☐
   b) Masters ☐
   c) Bachelor ☐
   d) A1 ☐
   e) A2 ☐
   f) A3 ☐
   g) Other (specify) ….. ☐
3. TVET Trainer Certification:
   a) Senior TVET Trainer Certificate ☐
   b) TVET Trainer Certificate ☐
   c) No Certificate ☐
4. RTQF Levels taught: 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

5. Type of Module(s) taught:
   a) Specific ☐
   b) General or Complementary ☐
6. Number of taught periods per week:
   a. Less than 30 ☐
   b. Between 30 and 40 ☐
   c. Above 40 ☐
7. Experience in TVET teaching:
   a) Less than 3 years ☐
   b) Between 3 and 5 years ☐
   c) Between 5 and 10 years ☐
   d) Above 10 years ☐
8. School status: Public ☐ Government aided ☐ Private ☐
9. School category: Boarding ☐ Day school ☐

Section B: Factors that affect practical skills acquisition in TVET schools in Rulindo district

To what extent do you agree or disagree with the following factors that affect practical skills acquisition in TVET schools in Rulindo district? Show it by putting a tick in one box for each factor.

Factors	**SD**	**D**	**N**	**A**	**SA**
Relevance of curriculum					
Qualification of Trainers					
Hands-on Training					
Industry Partnership					
Availability of Resources					

SD= Strongly disagree D= Disagree N= Neutral A= Agree SA= Strongly agree

Section C: Challenges faced by TVET Trainers in Rulindo district

1. Lack of training manuals ☐
2. Mismatch between length of content and time allocated to module(s) ☐
3. Insufficient materials, tools and equipment for practical sessions ☐

4. Overcrowded classes ☐
5. Inadequate school infrastructure ☐
6. Others (specify): ……..

Section D: How do the above mentioned challenges affect your teaching in TVET?

1. It takes time to search for the content ☐
2. Insufficient time to prepare session plans ☐
3. Taught content might be different from other TVET Schools ☐
4. Difficult to finish the curricula ☐
5. Insufficient practice ☐
6. It is difficult to effectively assess all learners ☐
7. Others (specify): …☐…….

Appendix 3: School managers consent form for interview

Please fill in and return the reply slip below indicating your willingness to be a participant in my voluntary research project called: **"Factors affecting Practical skills acquisition in Technical and Vocational Education and Training (TVET) Schools in Rwanda: The case of Rulindo District**"

I ,..... give my consent for the following:

Circle one to show your agreement

Permission to be interviewed

I accept to be interviewed for this study. **YES or NO**

I give permission to be audio-taped in this interview **YES or NO**

I know that I can stop the interview at any time. **YES or NO**

I know that I have right to refuse answer all questions asked any time. **YES or NO**

I know that the audiotapes will be used for the purpose of this study only YES **or NO**

Appendix 4: Interview protocol with school managers

I. General information on School Manager and school

1. Highest Qualification:
   a) PhD ☐
   b) Master's Degree ☐
   c) Bachelor's Degree ☐
   d) A1 ☐
   d) Other (specify) …. ☐
2. School RQF Levels: 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐
3. Sectors:
   a) Agriculture and Food Processing ☐
   b) Construction and Building services ☐
   c) Energy ☐
   d) Hospitality and Tourism ☐
   e) ICT and Multimedia ☐
   f) Transport and Logistics ☐
   g) Crafts and Recreational arts ☐

4. Experience in TVET Leadership &Management:
   e) <1 year ☐
   f) 1-3 years ☐
   g) >3-5 years ☐
   h) >5-10 years ☐
   i) >10 years ☐
5. School status: Public ☐ Government aided ☐ Private ☐
6. School category: Boarding ☐ Day school ☐

II. What are the factors that affect practical skills acquisition in your TVET schools?
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III. What are the challenges that affect the practical skills acquisition in your TVET schools?

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IV. How do those challenges affect the practical skills acquisition in TVET schools?

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V. What are your recommendations on improving the practical skills acquisition in TVET schools?

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……..……..

VI. Would like to share any other comment?

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……
…….

Appendix 5: Recommendation and authorization letters

UNIVERSITY of RWANDA

COLLEGE OF EDUCATION

RESEARCH AND INNOVATION OFFICE

Rukara, 3rd April, 2023
Ref: 03/DRI-CE/058(a)/ EN/gi/2023

Mr Jean Damascene RIKUNZE
Master Student
Master of Education in Curriculum & Instructions
School of Education
UR-CE

Dear Mr Rikunze,

RE: RESEARCH ETHICAL CLEARANCE FOR YOUR STUDY

Following your application for research clearance for your study entitled: "**Factors affecting Practical skills acquisition in Technical and Vocational Education and Training (TVET) Schools in Rwanda: The Case of Rulindo District.**"

Having reviewed your application and being satisfied with your protocol (your research topic, interview schedule, and informed consent): your study is ethically acceptable. This ethical clearance shall last for 8 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
Tel.: 250788308862
Email: ndabagav@yahoo.ie
UR-College of Education

Cc:

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

EMAIL: dri.ce@ur.ac.rw P.O. Box: 55 Rwamagana WEBSITE: www.ur.ac.rw

UNIVERSITY of RWANDA

COLLEGE OF EDUCATION

RESEARCH AND INNOVATION UNIT

Rukara, 3rd April 2023
Réf: 03/DRI-CE/058(b)/EN/gi/2023

The Mayor
Rulindo District
Northern Province
Rwanda

Re: Research recommendation letter for Mr Jean Damascene RIKUNZE

On behalf of the University of Rwanda-College of Education (UR-CE), I introduce Mr Jean Damascene Rikunze, a postgraduate student at the School of Education of UR-CE. Mr Rikunze is writing his thesis entitled: "**Factors affecting Practical skills acquisition in Technical and Vocational Education and Training (TVET) Schools in Rwanda: The Case of Rulindo District"** to complete his Master of Education in Curriculum and Instructions.

He wishes to investigate the factors & challenges that affect skills acquisition in TVET schools. His research will involve the school managers, trainers and trainees from all TVET (Level 1 to Level 5) schools in Rulindo District.

Therefore, we kindly request your permission for him to collect data from TVET schools in your district.

We very much hope to get your usual cooperation.

Yours sincerely.

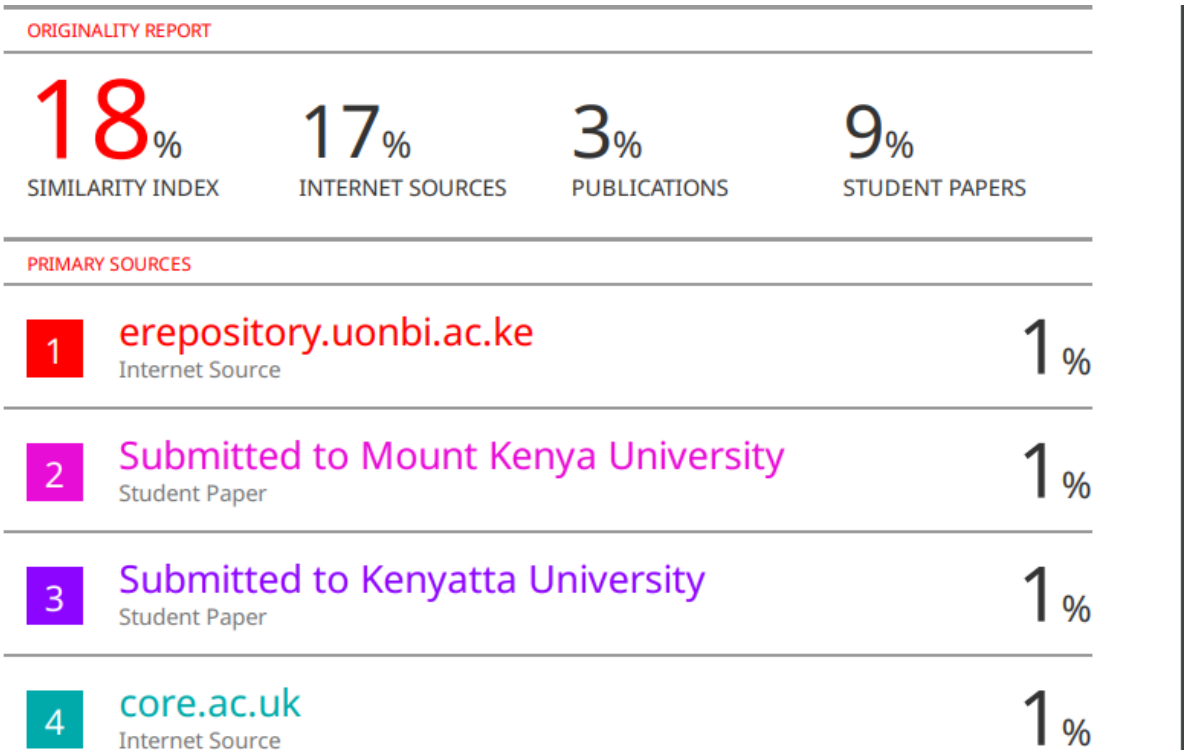
COLLEGE OF EDUCATION
UNIVERSITY of RWANDA
RESEARCH AND INNOVATION UNIT

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
- Professor Wenceslas Nzabalirwa (Supervisor)

Appendix 6: TURNITIN REPORT



ORIGINALITY REPORT

18%	17%	3%	9%
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