Role of Technical, Vocational Education and Training Programs on Youth Employability in Rwanda

A Case of TVET Schools in Rwamagana District

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Abstract: The purpose of this study was to examine the role of TVET Programs on youth employability in Rwanda, Case of Rwamagana TVET schools. This research was supported with employment searching theory, Human Capital Theory and Transformation Learning Theory. The Researcher employed a descriptive and correlation research designs. The participants were trainees, trainers, school managers and company owners. All respondents were 890 including 600 trainees, 150 trainers, 15 school managers and 125 company owners. The Yamane formula will be used to calculate the sample size of 276 respondents. The participants were chosen by using different methods where researcher used random sampling and purposive sampling. Researcher used questionnaires and interviews guides as data collections instruments where Questionnaire was designed to students and teachers and interview guide was designed for schools’ managers. Researcher used SPSS 21.0 in analysis procedure. The findings related to this objective were presented in Table 4.9, which showcased the respondents’ perspectives and insights regarding the relationship between TVET programs and youth employability, the outcomes of this analysis are summarized in Table 4.9. This research focused on two variables: independent variables, represented by TVET programs and dependent variables, represented by youth employability. The study revealed a strong relationship between TVET programs and Youth employability in Rwanda. This relationship was substantiated by a Pearson correlation coefficient (r) of 0.918, which was associated with a statistically significant p-value of 0.000 for a two-tailed test. This suggests a highly positive and statistically significant association between TVE programs and youth employability. The findings also found in table 4.10 that all variables are coherent as it is shown by the regression analysis model with Square of 0.843 means that the all kinds of TVET programs affect significantly youth employability to meet the labor needs markets therefore all TVET programs are highly needed and appreciated to the labor market and to enhance the youth employability in Rwanda. The government should allocate sufficient resources and funding to expand and enhance TVET programs across the country and prioritize investment in infrastructure, equipment, and teacher training to ensure the quality and effectiveness of vocational education. Ministry of Education should continuously review and update TVET curricula to reflect emerging industry trends, technological advancements, and changing Labor market demands and integrate soft skills development, entrepreneurship education, and digital literacy into vocational training to enhance graduates’ readiness for the workforce.

Key words: TVET Programs, Youth Employability, in Rwanda, TVET Schools

1.0 Introduction

Globally, all countries are struggling to the issues an employment rate specifically for young generations and most Governments are making renewed endeavours to encourage the advancement of technical and vocational education and training (TVET) as a means to enhance productivity and maintain competitiveness in the global economy through skills development(Ryan,2012).

In Germany, they have pioneered a highly distinctive "dual" system, where theoretical knowledge is imparted in educational institutions while practical skills are acquired through apprenticeships in partnering companies. This German system has gained widespread international admiration. It is commonly observed that countries implementing such a system tend to experience lower rates of youth unemployment such as Switzerland, Australia and Denmark are doing the same (Piopiunik and Ryan,2012). TVET Programs is regarded as systems of educating that play a crucial role in unemployment reduction in a given society and promote country economy (Bhola, 2000). According to Christensen (2002), it is recommended that the Technical and Vocational Education and Training (TVET) system should prioritize a competency-based approach and be driven by job opportunities.

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In Ghana, the Industrial Skills Development Center was established in 2002. This center operates in close collaboration with the Association of Ghana Industries (AGI) and the Ghana Employers Association (GEA). Its primary objective is to mobilize the necessary financial and material resources to ensure excellence in skills training (Roeske, 2003).

In Rwanda, skills development and employment promotion are central to the country's transformative Vision 2050, which seeks to ensure a high standard of living for all citizens. To achieve this vision, Rwanda recognizes the need to cultivate a dynamic and skilled workforce that can meet the increasing demand for high-skilled jobs. Technical and Vocational Education and Training (TVET) plays a crucial role in equipping individuals with the practical knowledge, hands-on skills, and competencies required for specific occupations and the broader labor market, addressing both present and future job requirements.

High-quality TVET systems, particularly those with robust work-based learning components, facilitate smooth transitions for young people into the workforce, contributing to the reduction of unemployment rates and supporting overall economic development. TVET also serves as a powerful tool for empowering individuals to unlock their full potential, enabling them to seize social and employment opportunities while increasing the productivity of both workers and enterprises. Additionally, TVET institutions play a significant role in supplying a skilled workforce that can effectively address sustainable development challenges, as education and training are integral to achieving decent work and socially sustainable, equitable growth (RTB, 2022).

To address the prevailing issue of unemployment among young people, ministry of education have raised its expenditures in education service. This have produced higher supply of skilled labor from vocational training institutions. Furthermore, the establishment of the Workforce Development Authority (WDA) in 2012, operating under the Government of Rwanda targeted to enhance the quality of education and maintain the regulatory role in addressing the unemployment trend in the labor market (WDA, 2016).and Rwanda TVET Board is mandated with the coordination of all programs, projects and activities that can fast-track the development of TVET in Rwanda(MINEDUC,2018)

Youth unemployment and the lack of a well-trained workforce in the labor market pose significant challenges, leading to low labor productivity in the manufacturing and productive sectors across Africa (Angel and Carol, 2012). In Rwanda, the labor force has been expanding rapidly, surpassing the available employment opportunities (NISR, 2016). The issue of unemployment is particularly critical among active youth aged 16 to 30, with an estimated unemployment rate of 21 percent (NISR, 2016).

Moreover, the unemployment rate varies depending on the level of education attained. Individuals who have completed university education face an unemployment rate of approximately 14 percent, while those with a high school education have an unemployment rate of around 11 percent, with the rate gradually decreasing for those with lower educational levels (NISR, 2016). There are several contributing factors to this situation, including limited qualified personnel in training programs, lack of experience among young job seekers, inadequate skills to meet labor market standards, and shortcomings in the education system (RoR, 2010). Level of formally unemployed rate stands at 15.5% impacting the entire nation (RoR, 2005).

TVET is central to the accumulation of the human resources as a requisite for achieving the economic growth and better employability, mobility and safety at the work place. TVET encourages the development of competences of the young people and adults that addresses the needs of the modern, flexible and competitive labor market. The presence of high-quality Technical and Vocational Education and Training (TVET) programs, coupled with strong connections to the level is important to promoting inclusive and sustainable growth. Such programs enable countries to diversify their economies and create opportunities for decent work. By equipping individuals with relevant skills and competencies that align with the needs of industries, TVET plays a pivotal role in fostering economic development while ensuring social inclusivity and providing meaningful employment opportunities.

The process of modernizing Technical and Vocational Education and Training (TVET) has commenced by creating a comprehensive overview of programs centred around sectors that offer significant employment opportunities. These sectors include Construction
and Building Services, Energy, Technical Services, Hospitality and Tourism, ICT and Multimedia, Arts and Crafts, Agriculture and Food Processing, Transport and Logistics, Manufacturing and Mining, as well as Beauty and Aesthetics (RTB, 2022).

Technical and vocational education and training (TVET) programs are highly effective in building human capital and enhancing the capabilities of young individuals by equipping them with necessary knowledge and competencies required for self-employability. However, despite the efforts in providing TVET opportunities, youth unemployabilities had been increasing rapidly. This is primarily due to the fact that a significant number of students graduate each year, but the available employment opportunities do not keep pace with the growing number of graduates. As a result, there is a mismatch between the skills possessed by young people and the actual job market demands, leading to higher levels of youth unemployment. Although technical and vocational training is practiced in Rwanda, youth employment remains critical and there are no more references/studies on the role played by TVET schools on employment opportunity among youth. Therefore, researcher decide to carry out research on how TVET programs impact youth employability in Rwanda, specifically in Rwamagana TVET Schools, Rwanda.

1.2 Objectives of the Study

The purpose of this study was to examine the role of TVET Programs on youth employability in Rwanda, Case of Rwamagana TVET schools.

2.0 Review of related literature

2.1 Theoretical Literature

This section includes: concept of TVET min terms of curriculum, instructional resources and viability of the training programs, and graduates employability in terms of acquisition of competencies, employment and graduates self-esteem level as factors that interplay to affect either positively or negatively the graduates level of employability.

2.1.1 TVET Programs and Skills Development

Human resources development can be effectively achieved through TVETs programs. Skills development have big role in empowering individuals with increased earning potential and access to a better quality of life, including essential necessities like healthcare, food, clothing, and shelter (MDG1, UN, 2010). By tailoring TVET curricula to foster self-employment, developing countries can effectively reduce unemployment rates (Netherlands, Ministry of Foreign Affairs, 2009).

Caillods (1994) highlights the importance of skill development and the overall skills formation system, as they contribute significantly to individual and company incomes, as well as national production. By enhancing workforce skills, enterprises become more productive and profitable, leading to increased production and overall wealth generation in national economies. Research has also demonstrated a complementary relationship between capital and skills. Human capital has been identified as a significant determinant of physical capital investment in an economy. Higher levels of human capital enable more efficient utilization of plant and machinery, resulting in a higher rate of return on investments (Bui & Porter, 2010). Therefore, investing in skills development is crucial for overall economic growth and prosperity.

2.1.2 Employability and skills

Employability refers to the possession of essential "core-skills," which can either comprise a standardized set of general qualities or specific attributes outlined by employers of a specific field, industry, or company. It not only entails meeting the requirements of the job market but also includes factors such as an individual's readiness, capability, adaptability, and willingness to enhance skills through training. Additionally, it involves functional flexibility, which means being open to working different shifts and taking on tasks beyond the usual job description (Misra and Mishra, 2011).

In essence, Employability refers to an individual's capability to be gainfully employed, taking into account their readiness to meet the requirements and expectations of potential employers, along with their willingness to adapt and grow professionally. It involves a combination of essential skills, adaptability, and a proactive approach to enhancing one's competencies, making individuals more attractive and viable candidates in the job market.
Employability has been approached from various perspectives. Hassall et al. (2005) defined employability as the attainment and retention of fulfilling work. The notion of "pro-active adaptability" was first introduced by Fugate et al. in 2004 as an essential aspect of employability. This concept comprises three key dimensions: career identity, personal adaptability, and social networking skills, which are influenced by both social and human capital.

Knight and Yorke (2003) introduced metacognition as an important concept related to employability, emphasizing understanding, skills, and efficiency beliefs of graduates. Metacognition involves knowing what you know, how it can be applied, and how to acquire new knowledge. According to Knight and Yorke (2003), metacognition is crucial for professionals to engage in continuous learning and adapt to changing work demands. Professionals who lack reflective capacity may stagnate in their careers. In addition to possessing relevant technical competencies, employees also require support in developing essential skills (Bridgstock, 2019).

2.2 Empirical literatures

This section explains the different research studies which were conducted by other previous researchers in line with this study. We review them to offer direction to the current study so as to bring out clearly our findings which may be supported or opposed to the percurrent studies.

2.2.1 Technical and vocational training towards Labor market

Numerous studies have been conducted worldwide, including in African countries, to examine the relationship between Technical and Vocational Education and Training (TVET) and youth unemployment. These studies aim to enhance our understanding of the field and shed light on strategies to address the issue (Jacob, 2011). OECD (2008) has carried out a research on TVET in developing countries which managed various cost and interest gained from implementation of TVET and problems facing during monitoring and evaluation of this program. Furthermore, the study seeks to find out the advantages of attending TVET programs as a regard to employment opportunity among young people. The benefits of individuals include accessibility to job, increased level of gain, getting good job, chances of getting training and improving their skills needed in their daily life (Netherlands, Ministry of Foreign Affairs, 2009).

The importance of skilled employees in a company cannot be overstated, as they contribute to increased production and bring numerous benefits to the organization. In Africa, various academic institutions and organizations such as the International Labour Organization (ILO), World Bank (WB), and African Union (AU) have conducted studies to address the issue of TVET and unemployment (Norris, 2006). Furthermore, the presentation of VTCs was found to be impacted by various issues. One such challenge is the lack of areas for field practices, which was reported by 27 percent of respondents. The absence of suitable spaces for practical training limits the exposure of trainees to real-world work environments and hampers their ability to acquire relevant skills. Additionally, poor coordination within the VTCs was identified as a challenge by 14 percent of respondents. This lack of coordination can lead to inefficiencies and hinder the delivery of well-qualified and competent trainees (Nwuke, 2002).

These challenges collectively contribute to limitations in the performance of VTCs and their ability to deliver high-quality training. Addressing these issues, such as ensuring an adequate supply of training materials, providing necessary equipment, creating suitable spaces for field practices, and improving coordination, is crucial to enhance the effectiveness and outcomes of VTCs in producing well-prepared and competent trainees (Okolocha, 2012).

Takele (2014) in his study on factors associated with employment opportunity among TVET graduates in Burayu TVET School. The research aimed at investigating the factors leading to self-employment of TVET graduates. It also addresses the overview of self-employments in creating their own business and the supports they acquire from TVET colleges/institutes. In view of that, Vocational and Technical Education and Training (TVET) institutes and colleges are specially taken as important element to achieve the desired sustainable livelihood through creating job opportunities. Data collection instruments containing questions related to the
study objectives were used to gather information. The information was gathered from 165 respondents taken randomly the study revealed, factors influencing the graduates of Self-employment status were classified in to economic and social factors.

2.2.2 Linkage of TVET skills with employability

In industrialized nations, vocational education and training (VET) are widely recognized and valued. However, in developing nations like those in Africa, VET still faces negative perceptions and prejudices from parents and other groups. Amodu (2011) highlights that vocational training is often seen as an inferior option suitable only for drop-outs or less academically inclined learners. Similarly, others view VET as a low-quality education reserved for second-class citizens (ETF, 2005; Ladipo et al, 2013; Okolocha, 2012).

Empirical surveys conducted by Akhuemonkhan and Raimi (2013) support these negative perceptions. A significant percentage of respondents described vocational and technical training as an option for students who cannot cope with traditional education systems. Many believed that vocational training was not suitable for brilliant students and considered it an inferior education designed for students from poor families. These findings align with the low esteem associated with vocational education in Africa, where learners on vocational programs are often seen as less privileged or second-class citizens.

In Nigeria, Akhuemonkhan and Raimi (2013) conducted research on the role of vocational training and technical educations on employability and national developments. They found that vocational training had limited effectiveness in terms of enhancing employability and contributing to national development. The study recommended that policymakers address these factors by improving funding, changing negative perceptions, enhancing expertise, implementing effective policies, and harmonizing curricula to make vocational education more impactful in stimulating employability and promoting national development.

In Rwanda, Mukeshimana (2016) was conducted on the technical, vocational education and training on graduates’ performance at the labor market in Huye district, Rwanda. His research emphasized on employers’ evaluation of TVT graduates about technical skills of their area of specialization, interpersonal communication skills, good attitudes towards work, entrepreneurship skills, critical thinking skills, motivation at work. The research confirmed that TVET skills that graduates possess are significantly related to their performance at work place even some technical skills are still missing (Mukeshimana,2016).

2.2.3 Youth Employment and Unemployment

According to NISR (2016), the rate of unemployment in Rwanda is dominant in city areas and mainly the person affected is those between sixteen and thirty years of age compared to adult people. The lack of job in cities is estimated at nine percent which is likely to be four times of the country, while is estimated to be 0.6% in countryside. The rate of jobless in young people, between sixteen and thirty was estimated at about four percent at the country level and twelve percent in city areas. Among urban areas in Rwanda, Kigali city is the most affected high level of unemployment among youth as the rate is estimated at eleven percent, which is higher, compared to country rate. When examining the unemployment rates by education level, individuals who have completed university education face an unemployment rate of around 14%, while those with a secondary level of education experience a rate of about 11%.

The high unemployment rates, especially among females, highlight the need for focused efforts to address this issue. It is crucial to promote equal opportunities for employment and work towards reducing gender disparities in the labor market. By implementing policies and initiatives that support female employment and create an inclusive labor market, the overall unemployment rates and gender gaps can be reduced.

The issue of connecting TVET institutions with the labor market has been raised, and there is a need for a better understanding of this link. This is a central question for labor unions that prioritize decent work. It is important to recognize that vocational education, in general, plays a significant role, but a system that lacks connection to the world of work can result in undervalued skills and even higher rates of unemployment. The International Labour Organization (ILO) has addressed this concern in its recommendation on
Human Resources Development: Education Training and Lifelong Learning (ILO, 2004). By aligning TVET programs with the needs of the labor market, individuals can acquire the skills that are in demand, enhancing their employability and contributing to overall economic growth and development.

The organization of the link between TVET and labor market is important, where apprenticeship plays a critical role. Whilst the relevance content of the programs as it is a concern of some of the employees have too much influence. From an international perspective however, it is hard to generalize about something as long as curricula. Instead, some points are made below on the methods of defining curricular content through so-called skills projection. (Emili,2005).

2.3 Theoretical framework

Theoretical framework described the theory that support existing of research problem Gabriel (2018). The theoretical frame work in research is important because it was lens through which helps researcher to evaluate problems under investigation and to meet study objectives, the researcher presented, the major theories related to TVET programs and young generations employability in Rwanda.

2.3.1 Employment searching theory

The ideas you mentioned align with the principles of neo-classical economics and the human capital-oriented employment search theory. In these theories, unemployed individuals, including young people, actively search for employment opportunities to maximize their utility or overall well-being. Within the employment search process, individuals, particularly young people, make choices based on their passion for certain types of employment and their expectations regarding compensation and benefits. This implies that they consider their personal interests and preferences when looking for a job (Divine et al,1993)

The theory of employment search incorporates statistical tools and models, such as the theory of worker's difficulty in finding employment opportunities in a decentralized labor market. This theory recognizes that job seekers may face challenges in matching their skills and qualifications with available job openings, especially in labor markets with dispersed information and opportunities (Norris,2006).

These theories emphasize that individuals, including young people, actively engage in the process of searching for employment, taking into account their own preferences, skills, and expectations regarding compensation. By doing so, they aim to maximize their utility and secure suitable employment that aligns with their personal and economic goals (Mc Call,1970). With the stated theory, it supported this study to highlight the role of TVET program for young generation in terms of employability in Rwanda.

2.3.2 Transformation Learning Theory

Transformational Learning Theory (TLT) is a complex and influential theory of learning that has been articulated by various scholars, including Habermas (2017), Collins (2015), but the work of Mezirow (2013) is particularly well-known for its comprehensive exploration of TLT. According to Dirkx(2018), transformational learning involves "conscientization," which refers to raising the consciousness of learners. This perspective encourages enhancement of thinking and understanding of oneself and the world. Collins describes transformational learning as the acquisition of critical consciousness, where learners develop the ability to critically analyse and reflect on their beliefs, assumptions, and values (Whereas&Collins,2020). TLT emphasizes that adult learning should go beyond simply sharing experiences but should involve problem-solving and critical reflection. It recognized that adult learners bring their own unique experiences and perspectives to the learning process, and through critical reflection, they can transform their existing beliefs and assumptions. This transformative process can lead to personal growth, expanded perspectives, and the development of new knowledge and skills.
TLT also recognizes the role of social and cultural contexts in shaping individuals' learning experiences. It acknowledges that learning is influenced by social norms, power dynamics, and the larger societal structures in which individuals are situated. TLT encourages learners to critically examine and challenge these contextual influences, fostering personal and social transformation.

2.4 Conceptual framework

Conceptual framework is a graphic presentation of the interrelationships of the variables involved in the study. This study was conceptualized as shown figure 2.1. It provides explanation in schematic relationship between two variables. These are independent variable which is TVET programs and the dependent variable which is youth employability and the intervening variable indicated by education policies, government leaderships, business promotion strategies and other strategic policies to raise youth employability.

Independent Variable

<table>
<thead>
<tr>
<th>TVET Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔ Building constructions services</td>
</tr>
<tr>
<td>✔ Energy</td>
</tr>
<tr>
<td>✔ Electronic and telecommunication services</td>
</tr>
<tr>
<td>✔ Hospitality and tourism</td>
</tr>
<tr>
<td>✔ ICT and Multimedia</td>
</tr>
<tr>
<td>✔ Arts and craft</td>
</tr>
<tr>
<td>✔ Agriculture and Food Processing,</td>
</tr>
<tr>
<td>✔ Transport and Logistics,</td>
</tr>
<tr>
<td>✔ Manufacturing and Mining</td>
</tr>
<tr>
<td>✔ Beauty and Aesthetics</td>
</tr>
</tbody>
</table>

Dependent Variable

<table>
<thead>
<tr>
<th>Youth Employability</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔ Employment Opportunities</td>
</tr>
<tr>
<td>✔ Self-employment</td>
</tr>
<tr>
<td>✔ Job Creativity and innovations</td>
</tr>
<tr>
<td>✔ Increase of job employment</td>
</tr>
</tbody>
</table>

Intervening variables

- Government policies
- State of economy
- Good working environment
- Leadership and organization performance

Figure 2.1 Conceptual framework

Researcher, 2023

Figure 2.1 categorically indicates the relationship between the variables and their respective constructs. The independent variable constructs in terms of course/input, facilities and equipment and connection of TVET with labor market have a direct effect on youth employability patterns that lead to the job and labor market satisfaction. However, the intervening variable contracts in terms of state of economy, Government policy and facilitator/learner characteristics would always limit the extent of effect of the constructs of the main variables.

3. Methodology

3.1 Research Design

This study used a descriptive method to describe the associated factors of TVET programs offered in Rwamagana district, Rwanda and Correlational research design helped to determine whether and to what degree and relationship exists between TVET programs and youth employability in Rwanda specifically Rwamagana TVET Schools.
3.2. Target population

The target population of this study is from 15 TVET schools in Rwamagana. Researcher targeted to use population of 890 peoples including 600 trainees, 150 trainers, 15 school managers and 125 company owners.

3.3. Sample design.

The sample was composed by the trainees graduated from TVET schools of Rwamagana district, trainers working in Rwamagana TVET schools, school managers of TVET schools and business owners of the different companies located in Rwamagana districts.

The sample size was determined by slovin’s formula of Yamane (1967) as population size is definite. That formula is given and explained as follow:

\[ n = \frac{N}{1 + N(e)^2} \]

\[ = \frac{890}{1 + 890 (0.05)^2} = 276 \]

\[ n = \text{Sample size, } n=276 \text{ respondents.} \]

Table 3. 1. Total population and sample size.

<table>
<thead>
<tr>
<th>Types of population</th>
<th>Population size</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trainees</td>
<td>600</td>
<td>186</td>
</tr>
<tr>
<td>Trainers</td>
<td>150</td>
<td>46</td>
</tr>
<tr>
<td>School managers</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Company owners</td>
<td>125</td>
<td>39</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>890</strong></td>
<td><strong>276</strong></td>
</tr>
</tbody>
</table>

In this study, the researcher used questionnaires as primary tools and key informant interview guide. The questionnaires are one of the strategies in the study to collect the complete information need from population. The key interview guide helped to obtain some information that was taken from participants.

4. Findings and discussion

4.1. Characteristics of the respondents

The participants were composed of trainers, trainees, school managers and the company owners. This section indicates the background information of the respondents based on their categories like age, working experience, gender, and educational levels.

The target population of this study is from 15 TVET schools in Rwamagana. Researcher targeted to use population of 890 peoples including 600 trainees, 150 trainers, 15 school managers and 125 company owners and sampled population were trainers, trainees, school managers and the company owners where all respondents was 276 including 186 trainees, 46 trainers, 5 Schools managers and 39 company owners from all selected schools located in Rwamagana district, Rwanda.

Table 4. 1. Characteristics of the respondents

<table>
<thead>
<tr>
<th>Statement</th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Trainees</td>
<td>186</td>
</tr>
<tr>
<td></td>
<td>Trainers</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>School manager</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Company owners</td>
<td>39</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>276</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Primary data, 2024

4.1.1 Gender of respondents

This research wanted to know all genders where research minded on how gender of respondents affects the research objectives, therefore table 4.2, table 4.3, table 4.4 and table 4.5 indicate gender of respondents.
Table 4. 2 Gender of trainees

<table>
<thead>
<tr>
<th>Statement</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Male</td>
<td>109</td>
<td>58.6</td>
<td>58.6</td>
<td>58.6</td>
</tr>
<tr>
<td>Female</td>
<td>77</td>
<td>41.4</td>
<td>41.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>186</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Primary data, 2024

The findings indicated in the table 4.2 highlight the gender of trainees where the majority (58.6%) of trainees were males while 41.4% of all trainees participated in the study were females and the gender of trainers is summarized in the table 4.3

Table 4. 3 Gender of school managers

<table>
<thead>
<tr>
<th>Statement</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Female</td>
<td>2</td>
<td>40.0</td>
<td>40.0</td>
</tr>
<tr>
<td>Male</td>
<td>3</td>
<td>60.0</td>
<td>60.0</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Primary data, 2024

Findings indicated that 60% of school managers participated in the study were males while 40.0% of all school managers participated in the study were the females means that gender were included in the study and there was no bias from gender inclusiveness on the side of school managers. The researcher wanted to know the gender of trainers and the findings were summarized in the table 4.4 by indicating the gender of trainers.

Table 4. 4 Gender of trainers

<table>
<thead>
<tr>
<th>Statement</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Female</td>
<td>13</td>
<td>28.3</td>
<td>28.3</td>
</tr>
<tr>
<td>Male</td>
<td>33</td>
<td>71.7</td>
<td>71.7</td>
</tr>
<tr>
<td>Total</td>
<td>46</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Primary data, 2024

Findings summarised in the table 4.4 indicates that the majority (71.7%) of trainers participated in the study were males and 28.3% of all trainers participated were females.

Table 4. 5 Gender of company owners

<table>
<thead>
<tr>
<th>Statement</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Female</td>
<td>18</td>
<td>46.2</td>
<td>46.2</td>
</tr>
<tr>
<td>Male</td>
<td>21</td>
<td>53.8</td>
<td>53.8</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Primary data, 2024

The companies were participated in the study to ensure if the graduands from TVET schools were participating at labor market in Rwanda therefore 53.8% of all company owners who accepted to participated in the study were males while 46.2% of all company owners were females, this means that company owners have integrated in the study to ensure the researchers that TVET schools provide information related to TVET employability in Rwanda.
4.1.2 Qualification of respondents

Researcher wanted to know the qualification of respondents and the findings were summarized in the figure 4.3. The researcher wanted to know the qualification of respondents specifically trainers, schools managers and company owners and all findings were summarized in the figure 4.3. The qualification were categorized into secondary school certificate, diploma, bachelor’s degree and postgraduates.

*Figure 4. 1 Qualification of Respondents*

Primary data,2024

The figure 4.3 revealed that 4 trainers participated in the study were with secondary school certificate, 7 trainers from all trainers were with diploma, 20 trainers from all trainers participated in the study were with bachelor of degree while 15 trainers who participated in the study were with postgraduate degrees. The qualification of school managers also were assessed in this study and 2 school managers were with diploma, 1 school manager were with bachelors degree while two of them were with postgraduate degree. Also the qualification of the company owner were assessed and 2 company owners were with secondary school certificates, 11 company owners were with diploma, 19 company owners were with bachelor degree while 7 company owners were qualified with postgraduate degree. This is indicated that the majority of respondents were qualified at least diploma degree means that they qualified to provide the information related with study objectives related to the graduate employability in Rwanda and the satisfaction of the labor market based on the TVET programs assurance.

4.1.3 Working experience for headteachers and teachers

The researcher tended to know the respondents working experiences to ensure the professionalism of the respondents specifically school managers and trainers. The findings shown in the figure 4.4 stressed the working experience of some of respondents participating in the study. As it is shown in the figure 4.4, 3 trainers were experienced in the range 0-3 years, 9 trainers participated in the study were experienced in the range of 4-7 years of working experience, 15 trainers also were experienced in the range of 8-11 years while 19 trainers were experienced in the range of 12 years and above.

*Figure 4. 2 Working experience for headteachers and teachers*
As it is shown in the figure 4.4, 1 school manager was experienced in the range 4---7 years, 1 school manager participated in the study were experienced in the range of 8---11 years of working experience while 3 school manager were experienced in the range of 12 years and above.

4.2 Presentation of the Findings

The specific objective of the study was four as they are the following: to examine the programs offered by TVET schools provide acquired skills youth integration on labor market, to examine the level of employability among youth graduated from TVET schools in Rwamagana District, Rwanda, to assess the employability challenges faced by youth graduated from TVET schools in Rwamagana District, Rwanda, to draw the relationship between TVET programs and youth employability in Rwanda, case of Rwamagana TVET schools. Data collection was based on the above specific objectives and the findings were highlighted.

4.2.1 Programs offered by TVET schools provide and their integration on labor market

The first objective of the study was based on the investigation of to examine the programs offered by TVET schools provide acquired skills youth integration on labor market in Rwanda. To achieve this objective, researchers drafted a questionnaire and interview guide for different respondents such as trainers, trainees and school managers. Here, respondents were required to show their perceptions by indicating the extent to which they agreed with the statements given as; SA (1) for Strongly Agree, A (2) for Agree, N (3) for Neutral, D (4) for Disagree and SD (5) for Strongly Disagree. Several items in the questionnaire were presented to the respondents to rate their availability and the findings are shown in Table 4.6. the researcher wanted to know the programs offered by TVET schools and all results and findings were summarized in the table 4.6. the first programs concerned in this study were building construction services, 97.9% of all respondents accepted that TVET schools from Rwamagana district provide training building constructions services, 1.7% of all participated trainers and trainees indicated that TVET schools from Rwamagana district do not provide training in building constructions services while 0.4% of all participated respondents indicated that they do not have any ideas about availability of building and constructions services.

Table 4.6 different programs offered by TVET schools

<table>
<thead>
<tr>
<th>Programs</th>
<th>SD Fr</th>
<th>N Fr</th>
<th>SA Fr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building constructions services</td>
<td>4</td>
<td>1</td>
<td>227</td>
</tr>
<tr>
<td>Energy</td>
<td>85</td>
<td>45</td>
<td>102</td>
</tr>
<tr>
<td>Electronic and telecommunication services</td>
<td>14</td>
<td>4</td>
<td>214</td>
</tr>
</tbody>
</table>
The second programs assessed was energy and the results indicated that 36.6% of all respondents indicated that TVET schools of Rwamagana district do not provide energy training,19.4% of all trainers they do not know if there is the energy trades in TVET schools while 44.0% of all respondents accepted that TVET school from Rwamagana have energy trades. The third trades assessed were electronic and telecommunication services where the majority(92.2%) of all respondents accepted that TVET schools have electronic and telecommunication services,6.1% of respondents indicated that electronic and telecommunication services are not provided in TVET schools while 1.7% of all participants accepted that they do not know any information of electronic and telecommunication services.

The findings indicated in the table 4.6 revealed that 96.1% of all respondents agreed that TVET schools from Rwamagana district have agricultures and food processing trades , 0.9% of all participated respondents indicated that TVET school from Rwamagana district do not have agriculture and food processing while 3.0% of all respondents refused to talk anything about availability of agriculture and Food Processing.

Other trades assessed in this study were based on the transport and logistic where 61.2% of all participated respondents indicated that there is no transport and logistic in TVET school from Rwamagana district,Rwanda,33.6% of all participated respondents accepted that Rwamagana district have transport and logistic trades in TVET schools while 5.2% of all respondents indicated that they do not have any information about transport and logistics trades in Rwamagana District specifically in TVET schools. Manufacturing and mining is another trades assessed in this study and findings revealed that 96.1% of all respondents accepted highly that they have manufacturing and mining, 3.9% of all respondents indicated that there is no manufacturing and mining trades in TVET schools from Rwamagana district.

**4.2.2 Level of employability among youth graduated from TVET schools**

Second objective of the study were the investigation the level of employability among youth graduated from TVET schools in Rwamagana District, Rwanda. Researchers used questionnaire and interview guide for different respondents such as teachers, students, headteachers. Here, respondents were required to show their perceptions by indicating the extent to which they agreed with the statements given as; SA (1) for Strongly Agree, A (2) for Agree, N (3) for Neutral, D (4) for Disagree and SD (5) for Strongly Disagree. Several items in the questionnaire were presented to the respondents to rate their availability and the findings are shown in Table 4.7 Researcher wanted to know the level of employability for graduands from TVET schools and the findings are shown in the table 4.7. The majority (65.1%) of all respondents accepted strongly that TVET graduands finds public job based their acquired TVET skills, 30.2% of all respondents accepted that they get job based on the TVET skills ,0.4% of all respondents were neutral to the statement on how trainees finds job based on the TVET skills, 3.0% of all respondents disagreed strongly that they get job based on the skills,1.3% of all respondents disagreed that they get job based on the skills while 0.4% of all respondents refused to say anything about employment based on the skills from TVET schools. The respondents were asked about creativity and innovation of the new job where the majority(79.8%) of all respondents appreciated how the TVET graduands created and innovated their own jobs, 12.9% of all respondents accepted also that TVET graduands created and innovated their own jobs,1.7% of all respondents disagreed strongly that the graduands from TVET schools create and innovate their own jobs ,3.0% of all respondents
disagreed also that graduands from TVET schools create and innovate their own jobs while 2.6% of all respondents indicated that they do not have information related on how graduands from TVET schools create and innovate their own jobs.

### Table 4. 7 Level of employability among youth graduated from TVET schools

<table>
<thead>
<tr>
<th>Statements</th>
<th>SD Fr</th>
<th>D Fr</th>
<th>N Fr</th>
<th>A Fr</th>
<th>SA Fr</th>
</tr>
</thead>
<tbody>
<tr>
<td>I find public job based on my TVET skills</td>
<td>7</td>
<td>3</td>
<td>1</td>
<td>0.4</td>
<td>70</td>
</tr>
<tr>
<td>I created and innovated my own job (Self-employments)</td>
<td>4</td>
<td>1.7</td>
<td>7</td>
<td>3.0</td>
<td>6</td>
</tr>
<tr>
<td>The current job is not related to the attended TVET programs</td>
<td>9</td>
<td>3.9</td>
<td>2</td>
<td>0.9</td>
<td>4</td>
</tr>
<tr>
<td>I improved my job incentives due the skills acquired from TVET school</td>
<td>19</td>
<td>8.2</td>
<td>4</td>
<td>1.7</td>
<td>1</td>
</tr>
<tr>
<td>I have business of more than 5 employees of my areas of study.</td>
<td>129</td>
<td>55.6</td>
<td>8</td>
<td>3.4</td>
<td>3</td>
</tr>
</tbody>
</table>

Researcher wanted to know if theirs occupations are related to attended training and trades, the majority (75.0%) of respondents indicated highly that graduands from TVET schools have occupations directly related to the to their attended training and trades, 18.5% of all participated respondents also accepted that graduands from TVET schools have occupations directly related to their attended training and trades, 3.9% of all respondents indicated highly that graduands from TVET schools have occupations which are not related to the their attended training and trades, 0.9% of all respondents disagreed that graduands from TVET schools have occupations directly related to their attended training and trades while 1.7% of all participated respondents indicated that they do not have any information related to the TVET attended training.

#### 4.2.3 Employability challenges faced by youth graduated from TVET schools

Third objective of the study were based on the assessment of to assess the employability challenges faced by youth graduated from TVET schools in Rwamagana District, Rwanda. Here, respondents were required to show their perceptions by indicating the extent to which they agreed with the statements given as; SA (1) for Strongly Agree, A (2) for Agree, N (3) for Neutral, D (4) for Disagree and SD (5) for Strongly Disagree. Several items in the questionnaire were presented to the respondents to rate their views and the findings are shown in Table 4.8

### Table 4. 8 Level of employability among youth graduated from TVET schools

<table>
<thead>
<tr>
<th>Statements</th>
<th>SD Fr</th>
<th>D Fr</th>
<th>N Fr</th>
<th>A Fr</th>
<th>SA Fr</th>
</tr>
</thead>
<tbody>
<tr>
<td>All schools have all enough equipment for all trades offered needed to acquired skills to the Labor market</td>
<td>37</td>
<td>15.9</td>
<td>93</td>
<td>40.1</td>
<td>6</td>
</tr>
<tr>
<td>All schools have enough school training consumables for practical skills needed to the Labor market</td>
<td>50</td>
<td>21.5</td>
<td>55</td>
<td>23.7</td>
<td>5</td>
</tr>
<tr>
<td>Each trades have its own workshops to maintain practical work</td>
<td>3</td>
<td>1.3</td>
<td>9</td>
<td>3.9</td>
<td>2</td>
</tr>
<tr>
<td>All students have completed and filled portfolio in the specific areas of the study.</td>
<td>15</td>
<td>6.5</td>
<td>6</td>
<td>2.6</td>
<td>5</td>
</tr>
<tr>
<td>TVET programs offered are reflecting labour market</td>
<td>1</td>
<td>0.4</td>
<td>8</td>
<td>3.5</td>
<td>1</td>
</tr>
</tbody>
</table>
Primary data, (2024)

Researcher wanted to know the challenges faced by graduands from TVET schools on the labor market and satisfaction of the country needs and the first point analyzed where the majority(40.1%) of all respondents indicated that All schools do not have all enough equipment for all trades offered needed to acquired skills to the Labor market, 15.5% of all participated respondents also disagreed that all schools do not have all enough equipment for all trades offered needed to acquired skills to the Labor market, 19.9% of all respondents appreciated and accepted that all schools have all enough equipment for all trades offered needed to acquired skills to the Labor market, 21.5% of all respondents accepted that all schools have all enough equipment for all trades offered needed to acquired skills to the Labor market while 2.6% of all respondents refused to talk about availability of equipment for all trades offered needed to acquired skills to the Labor market.

Second point assessed were based on availability of school training consumables for practical skills needed to the Labor market and the results shown 4.8 highlighted that 45.3% all respondents accepted highly that all schools have enough school training consumables for practical skills needed to the Labor market, 7.3% of all respondents appreciated also that all schools have enough school training consumables for practical skills needed to the Labor market, 21.5% of all respondents disagreed strongly that all schools have enough school training consumables for practical skills needed to the Labor market, 23.7% of all respondents disagreed that all schools have enough school training consumables for practical skills needed to the Labor market while the 2.2% of all respondents were neutral to the statements of how training consumables are available for practical skills needed to the labor market.

4.2.4 Relationship between TVET programs and youth employability

The fourth objective of this research project aimed to investigate the connection between TVET programs and youth employability in Rwanda, case of Rwamagana TVET schools. The findings related to this objective were presented in Table 4.9, which showcased the respondents' perspectives and insights regarding the relationship between TVET programs and youth employability, the outcomes of this analysis are summarized in Table 4.9. This research focused on two variables: independent variables, represented by TVET programs and dependent variables, represented by youth employability. The primary aim was to understand the correlation between these two variables and establish a regression analysis model.

Table 4.9Correlations of variables

<table>
<thead>
<tr>
<th>Statements</th>
<th>TVET programs</th>
<th>Youth employability</th>
</tr>
</thead>
<tbody>
<tr>
<td>TVET programs</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>232</td>
</tr>
<tr>
<td>Youth employability</td>
<td>Pearson Correlation</td>
<td>.918**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>232</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).

Primary data, 2024

Table 4.9 in the study revealed a strong relationship between TVET programs and Youth employability in Rwanda. This relationship was substantiated by a Pearson correlation coefficient (r) of 0.918, which was associated with a statistically significant p-value of 0.000 for a two-tailed test. This suggests a highly positive and statistically significant association between TVE programs and youth employability.

Table 4.10 Regression analysis Model Summary
The findings also found in table 4.10 that all variables are coherent as it is shown by the regression analysis model with Square of 0.843 means that the all kinds of TVET programs affect significantly youth employability to meet the labor needs markets therefore all TVET programs are highly needed and appreciated to the labor market and to enhance the youth employability in Rwanda.

5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study assessing the role of Technical and Vocational Education and Training (TVET) programs on youth employability in Rwanda underscores the pivotal importance of such initiatives in addressing the pressing issue of youth unemployment. Through a comprehensive analysis of various factors such as skills acquisition, industry relevance, and societal impact, the research reveals the significant positive correlation between participation in TVET programs and enhanced employability prospects among Rwandan youth. The study highlights the efficacy of TVET programs in equipping young individuals with practical skills and competencies that are directly applicable in the job market and focusing on hands-on training and industry-specific knowledge, these programs bridge the gap between theoretical education and real-world employment requirements. The graduates are better prepared to meet the demands of diverse industries, thereby increasing their attractiveness to potential employers.

This research emphasizes the crucial role of industry collaboration and stakeholder engagement in shaping the curriculum and delivery of TVET programs and aligning training modules with current industry needs and trends, these initiatives ensure that graduates possess the relevant skills and qualifications sought by employers. The partnership between educational institutions and businesses not only enhances the quality and relevance of TVET education but also fosters a symbiotic relationship wherein both parties benefit from a skilled workforce and improved productivity.

The study underscores the broader socioeconomic impact of TVET programs on Rwandan youth and society at large and empowering individuals with employable skills, these initiatives contribute to poverty reduction, economic growth, and social development. Through gainful employment, young people are better positioned to support themselves financially, contribute to their families’ welfare, and actively participate in the country’s progress and prosperity. The research identifies the need for continuous monitoring and evaluation of TVET programs to ensure their effectiveness and relevance in a dynamic and evolving job market. By regularly assessing the outcomes and impact of these initiatives, policymakers and education authorities can identify areas for improvement, address emerging challenges, and adapt strategies to better serve the needs of youth and employers alike.

5.2 Recommendations

The research findings have led to the following recommendations:

The government should allocate sufficient resources and funding to expand and enhance TVET programs across the country and prioritize investment in infrastructure, equipment, and teacher training to ensure the quality and effectiveness of vocational education.

Ministry of Education should continuously review and update TVET curricula to reflect emerging industry trends, technological advancements, and changing Labor market demands and integrate soft skills development, entrepreneurship education, and digital literacy into vocational training to enhance graduates’ readiness for the workforce.

Ministry of Education should implement rigorous quality assurance mechanisms to monitor and evaluate the delivery and outcomes of TVET programs and establish standards for accreditation, assessment, and certification to uphold the credibility and relevance of vocational education in Rwanda.
Trainers should invest in ongoing professional development and training for TVET instructors to enhance their pedagogical skills, industry knowledge, and ability to deliver effective vocational training and promote continuous learning and best practices sharing among trainers to improve teaching methodologies and student engagement.

Education institutions should provide comprehensive support services to students enrolled in TVET programs, including career counselling, mentorship, and psychosocial support and create a conducive learning environment that fosters creativity, innovation, and personal development alongside technical skills acquisition.

Education institutions should foster partnerships with industry stakeholders, government agencies, and community organizations to enrich the learning experience and expand opportunities for internships, apprenticeships, and job placements. Leverage alumni networks and industry connections to facilitate smoother transitions from education to employment.

Education institutions should raise awareness about the importance of TVET education in addressing youth unemployment and fostering economic development in Rwanda. Advocate for increased investment, policy support, and stakeholder collaboration to strengthen the TVET ecosystem and unlock its full potential for societal benefit.

Education institutions should encourage private sector companies to actively participate in TVET initiatives through corporate social responsibility (CSR) programs, skills development partnerships, and workforce development initiatives and demonstrate the business case for investing in TVET by showcasing the positive impact on talent pipelines, employee retention, and corporate sustainability.

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