

# The Moderating Effect of Gender and School Type on the Nexus between Soft Skills and TVET Graduates' Employability

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## Abstract

As the global economy evolves, the need for highly skilled workers becomes increasingly vital. In response to widespread unemployment throughout Africa, TVET programs offer opportunities for citizens to receive professional training. For potential employees, self-perception plays a critical role in their employability. Thus, this study examined the moderating roles of gender and school type in the relationship between soft skills and employability for TVET graduates. Using a survey research design, 327 respondents were systematically sampled and surveyed. The instrument's reliability was assessed with ordinal alpha coefficients of 0.89 and 0.77. The inferential analysis, specifically -the regression statistic, was used to evaluate the hypotheses at a significance level of 0.05. Hayes model 2 was also used to determine the moderation effects. Results revealed that gender does not moderate the relationship between soft skills and employability, but school type significantly moderated the relationship between soft skills and employability, with graduates from technical colleges having a stronger and more positive relationship between soft skills and employability than those from Brigade schools. To enhance employability, governments, professional institutions, and TVET program administrators should provide development programs on soft skills for educators, regardless of school type, to transfer relevant skills to their learners.

## 1. Introduction

Technical and vocational education and training (TVET) is a practice-based educational programme in Sub-Saharan Africa to prepare individuals for a specific career, profession, or training based on the needs of the country where the individual resides (Ramadan et al., 2019; Nugraha et al., 2020). TVET provides countries with opportunities to educate their citizens through professional practice in the wake of continent-wide unemployment, which is increasingly becoming too complex for African countries to control. A crucial part of Botswana's TVET sector is facilitating relevant, quality education aligned with the Fourth Industrial Revolution (4IR), which can lead to industrialisation and sustainable growth (Human Resource Development Council, 2021).

Botswana's Vision 2036 enshrines the importance of improving TVET, reflected in the country's TVET system. The country's education, training, and skills development system is aligned to enhance science, innovation, and technology to create a knowledge-based economy (Human Resource Development Council, 2021; Human Resource Development Council of Botswana, 2019). Chukwu et al. (2020) TVET could improve career advancement by influencing the employment market and transforming the economy. According to Chairani et al.

(2018), the 4.0 industry will alter jobs, but administration, tourism, and health are the fields most at risk of being digitised in Indonesian TVET schools. Global TVET systems are evolving to meet three external demands: economic growth, social equity, and sustainability (Msiska, 2016). Thus, the change and demand call for research on making TVET more of a 4.0 industry skills-based educational programme that will prepare youths for future work.

The global economic environment has made unemployment a significant concern, but in Botswana, it is shaped by several factors. Since 2021, Botswana's youth unemployment rate has decreased by 0.8 percentage points (-2.07%). Despite this, youth unemployment rates have increased significantly in the last two years (O'Neill, 2023). In the last four years, Botswana's youth unemployment rate is as follows: 2022 was 37.85%, 2021 was 38.60%, 2020 was 41.65%, and 2019 was 35.29% (*Botswana youth unemployment rate 1991-2023*, n.d.; Statistics Botswana, 2023). It has been found that many low- and middle-income countries, including Botswana, lack the skills and labour market skills needed for TVET and will not be able to meet the substantial increase in TVET demand in the coming years, according to a joint study by the World Bank, the International Labour Organisation (ILO), and the United Nations Educational, Scientific, and Cultural Organisation (UNESCO) (World Bank, 2023). Therefore, there is a need to revamp the Botswana TVET curriculum with relevant soft skills that will make them fit the current labour demand regardless of the TVET type. Botswana has a highly educated labour force and TVET graduates (Pheko & Molefhe, 2017). TVET programmes in Botswana are divided into brigades and technical colleges. TVET graduates must demonstrate the importance of employable skills to succeed in their organisations (UNESCO-UNEVOC, 2012). The use of soft skills aids in completing tasks efficiently (Behle, 2020). Most graduates lack soft skills and are unemployed (Nugraha et al., 2020; Okolie & Asfa, 2017; Rudhumbu, 2021). Graduates of TVET colleges must possess 4.0 skills to enter the workforce in the digital era (Nugraha et al., 2020; Rudhumbu, 2021; Awodiji & Magogi, 2023). Botswana TVET graduates' awareness of soft skills required for workplace success was assessed in this study.

The number of young Africans entering the job market is around 12 million annually (Afeti, 2017). However, most are underemployed or unemployed because they need more skills and qualifications for the current world of work. With TVET, however, African countries can increase the potential for the employability of young people and their market system's macroeconomic capacity, thus boosting economic productivity and reducing youth unemployment (Oketch, 2017). Young people in Botswana have benefited significantly from TVET in terms of their economic potential. Botswana is an example of successful development among Sub-Saharan African countries formerly under British colonial rule (Koobonye, 2020).

The TVET programme in Botswana is delivered through Brigades and Technical Colleges that offer vocational training up to the level of a certificate (National Craft Certificate) and diploma (Chitema, 2021; Government of Botswana, 2022; Human Resource Development Council of Botswana, 2019). The implementation of TVET in Botswana is considered successful in both approach and method (Oketch, 2017). TVET is reflected in the National Development Plans (NDPs), which span five years (UNESCO-UNEVOC, 2012). TVET began in Botswana around 1963 with the Brigades movement started by Patrick van Rensburg, a South African (Koobonye, 2020; Ngati, 2015). The Brigades movement was founded in response to the increase in the unemployment rate among primary school leavers, particularly those who could not further their education beyond the primary school level due to their poor academic performance (UNESCO-UNEVOC, 2012). The community-operated brigades were famous for integrating practical learning with production (Ngati, 2015). Brigades' activities involved running a certificate programme in skills acquisition designed for school leavers, especially those who prefer vocational careers.

A highly skilled workforce has become increasingly important in the new era of development (Bano et al., 2022). Despite the opportunities for graduates, the TVET system was generally considered the "education of failures" in Botswana (Koobonye, 2020, p. 45). Aside from the negative perception of the general populace regarding TVET, TVET is facing some challenges, including performance issues, low prioritisation, and low curriculum quality. It has been demonstrated that TVET institutions face challenges such as infrastructural issues, inadequate funding, inadequate skills, insufficient industry connections, and low female participation in TVET courses (Bano et al., 2022). For TVET graduates to be competitive in the 21st-century workplace, creativity, critical thinking, problem-solving, communication, collaboration, and digital literacy are essential skills required in Indonesia (Mutohhari et al., 2021). According to Akpan et al. (2018), entrepreneurship can be a powerful tool for students to acquire employment-ready skills and self-reliance. A relationship was found between career management and employability skills for TVET students (Zakaria et al., 2017). Therefore, inculcating soft skills into the TVET programme will prepare students for immediate employment.

Given that unemployment is a natural and global occurrence, it affects people negatively when it lasts for an extended period. Technology has replaced people in the global job market, creating social tensions and disengaging workers (Anshari et al., 2022). In many parts of the world, this problem would require substantial examination of how to equip graduates with digital and employable skills (Rahman et al., 2019). For TVET graduates to be successful and employable, it is essential to develop fundamental technical competencies and work-related attitudes (Löfgren et al., 2022). According to Berntsen and Johannesen (2023), TVET and digital

competence need more research. Generally, the world is being driven by digitalisation, which is an attribute of the global demand for work. Thus, there is a need to examine the relationship between soft skills and the employability of TVET graduates. According to Papier et al. (2016), employers demand basic theoretical and practical skills from TVET graduates, as well as communication skills, computer skills, customer service skills, self-management skills, readiness to learn, professionalism, resilience, teamwork skills, ethics, accountability, and discipline.

Giving students job-related skills strongly linked to graduate employability is one of the specific goals of TVET (Bekker, 2021; Chitema, 2021.; Hondonga et al., 2021; Koobonye, 2020). The future career of a TVET student is correlated with their graduate employability (Chitema, 2021.; Kaur et al., 2008; Legg-Jack, 2014; Okolie et al., 2020; Schoeman et al., 2021; Succi & Canovi, 2020). According to Awodiji and Magogodi (2023), TVET graduates' soft skills are strongly related to their employability. Most graduates think getting good grades will make getting jobs easier (Okolie et al., 2020). Nevertheless, the rapid adoption of new technology and the range of skills demands that companies seek in line with current globalisation have transformed the work market (Pheko & Molefhe, 2017). As a result, the move has resulted in various issues and has indirectly affected Botswana's weak economic performance (Koobonye, 2020).

### 1.1 Hypotheses

The following hypotheses guided the study:

HO1: Soft Skills do not significantly enhance the employability of TVET graduates.

HO2: Gender does not statistically and significantly moderate the link between soft skills and TVET graduates' employability.

HO3: School type does not statistically and significantly moderate the relationship between soft skills and employability.

### 1.2 Theoretical Framework

The theory of soft skills recognises that these skills are valuable for career development, effective communication, and relationship building. Employers often seek employees with a blend of technical expertise and soft skills to foster a productive and positive work environment. Self-assessment, training, and practice are all necessary to develop employability and soft skills. As these skills contribute to a well-rounded and adaptable workforce, employers increasingly value them across various industries. A person's employability is the ability to acquire, improve, and understand skills crucial to workplace success (Yorke & Knight, 2004). Before seeking a longer-term job that will prepare them for graduate-level work, graduates usually look for immediate employment to gain experience and pay off education loans. In addition, graduates are emphasised as capable of adapting to the job market without additional training. Therefore, Yorke and Knight assumed that TVET students would learn, understand, and achieve the skills they need to obtain employment after graduation. TVET graduates were examined for their "soft skills", a set of abilities that prepare them for work, with gender and school type as moderators.

### 1.3 Graduate Employability

Graduate employability is the ability of TVET graduates to gain and maintain employment and adapt to changing employment conditions. It encompasses skills, attributes, and qualities that make a TVET graduate attractive to employers and capable of contributing effectively to the workplace. Thus, graduate employability is more than just having a job; it is about preparing for a successful and sustainable career after graduation. The concept of graduates' employability recognises that employment is not just about TVET graduates finding a job but also about continuously developing their skills and abilities to remain valuable in the labour market. Thus, graduates' employability is influenced by both individual efforts and the broader economic and societal context, including factors like labour market conditions, technological advancements, and government policies that support workforce development (Puteh et al., 2017). Employability is a dynamic and evolving concept that varies across industries and regions, making it essential for individuals to manage and invest in their employability throughout their careers proactively.

### 1.4 Soft Skills

The term "soft skills" refers to qualities and abilities that influence interaction and communication and work collaboratively in different social and professional contexts (Chaka, 2020; Kohnová et al., 2021; Martin et al., 2019). In contrast, soft skills are distinct from technical skills, which are job-specific and often related to a particular field or industry (Balcar, 2016; Pieterse & van Eekelen, 2016; Puteh et al., 2017). Consequently, soft skills tend to be more transferable and applicable to various situations. Some common soft skills include

communication, emotional intelligence, teamwork, leadership, adaptability, presentation skills, problem-solving, time management, conflict resolution, decision-making, networking, and negotiation skills (Asefer & Abidin, 2021; Awodiji & Magogodi, 2023; Hong, 2016; Kohnová et al., 2021; Martin et al., 2019; Puteh et al., 2017). In this study, soft skills are described as communication, leadership, creativity, innovation, problem-solving, and self-awareness skills that TVET students need to obtain gainful employment.

HO<sub>1</sub>: Soft skills do not significantly enhance the employability of TVET graduates

## 1.5 Employability –TVET and Soft Skills

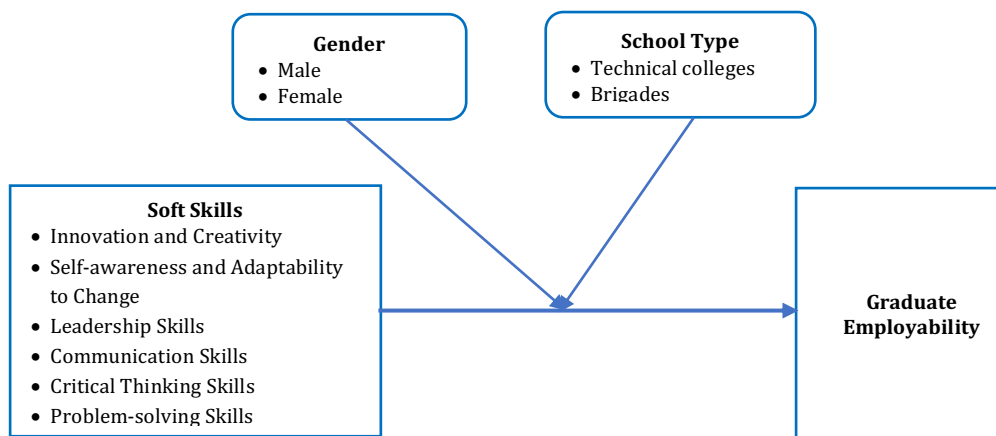
Soft skills refer to motivations, preferences, and personality traits necessary for employment, education, and the workplace (Ciappei & Cinque, 2014; Heckman & Kautz, 2012; Yorke, 2006). Soft skills are discussed as skills that complement the practical skills of graduates of TVET programmes. Soft skills can be acquired continuously and applied to all industries and fields. Audu et al. (2013) claim that leadership skills are soft skills that positively impact employment, which is why they are in high demand. People with soft skills recognise the importance of human behaviour in solving problems (Misra, 2018). Research has emphasised the significance of interpersonal skills at work, and Misra (2018) pointed out that employers are interested in candidates with a solid academic record and excellent interpersonal skills.

In order to succeed in the 4.0 industry, Chaka (2020) observed that graduates must possess problem-solving skills. In addition, Majid et al. (2020) emphasise the importance of problem-solving abilities in the 4.0 industry. The increasing digitalisation of supply chains and procedures in the workplace requires TVET graduates to have digital skills to operate alongside evolving technologies (Nugraha et al., 2020). Wise et al. (2005) found a positive relationship between TVET graduates' emotional intelligence and employment prospects.

Employability combines soft skills required to fulfil a workplace's technical, interpersonal, and intrapersonal requirements. Soft skills are interrelationship skills such as relationship building, cooperation, and team spirit, which overcome barriers in communication and work planning to increase productivity (Balcar, 2016). Communication, interpersonal, and problem-solving skills are the three most essential, aside from hard or technical skills demanded by industries (Ismail & Mohammed, 2015; Oluwalola & Awodiji, 2021). Ismail and Mohammed (2015) categorised industry-specific competencies into generic abilities, core TVET skills, and personal attributes. The generic skills include soft professional skills such as professionalism, teamwork, communication, self-awareness, self-learning, problem-solving, adaptability, enterprise, taking the initiative, and time management skills (Balcar, 2016; Mohammed, 2015). The core TVET skills include knowledge in STEM (Science, Technology, Engineering and Mathematics), competency in electrical technology education, and lifelong learning. At the same time, personal attributes refer to attitudes and traits needed to fulfil specific roles.

Developing useful talents is a significant component of human capital management (Oluwalola & Awodiji, 2021). Many scholars have defined soft skills as the current collection of talents needed for job employability in the global marketplace (Dolce et al., 2020; Hartanto et al., 2017; Pieterse & van Eekelen, 2016; Succi & Canovi, 2020). Soft skills are "personality traits, goals, motivations, and preferences valued in the labour market, school, and many other domains" (Heckman & Kautz, 2012, p. 451). A soft skill is a set of personal attributes and social graces that make an individual an effective employee. Across a wide range of jobs, soft skills are associated with effective performance (Ariff et al., 2017). Soft skills are linked to employability (Puteh et al., 2017). To minimise skills gaps and graduates' unemployment, it has been suggested that the private sector provide skill development programmes and build partnerships with TVET institutions (Oviawe, 2018). Self-perception is a crucial element of employability from the perspective of a potential employee; hence, it is vital to explore this element and its drivers better to understand the employability (Pitan & Muller, 2020). Wan Muda et al. (2020) found that soft skills and employment prospects for engineering graduates were positively correlated in Malaysia. As a result, engineering graduates possess sufficient soft skills to enhance their employability.





**Fig. 1** Conceptual model

This study examined the moderating effect of gender and TVET school-type relationship between soft skills (communication, leadership, creativity, and innovation, problem-solving, and self-awareness) and TVET graduate employability in Botswana. The related studies have significantly established a substantial nexus between graduate employability and soft skills (Asefer & Abidin, 2021; Rahmat et al., 2012). Meanwhile, graduates' employment status in Malaysia does not significantly correlate with their soft skills (Ariff et al., 2017). The findings by Ariff et al. (2017) might have been informed by factors such as the chi-square test's statistical tool, which is unsuitable for establishing a correlation between two continuous variables (Pallant, 2011). Thus, this study explored the degree to which gender and TVET school type interplay between TVET graduates' employability and soft skills in Botswana. This study explored the moderating relationships illustrated in Figure 1. This study makes two significant contributions by addressing these concerns. First, it empirically examines how gender impacts TVET graduates' employability through soft skills. In addition, this study examines the moderating effect of school type on the relationship between soft skills and the employability of TVET graduates.

### 1.6 Gender Moderates the Nexus between Soft Skills and TVET Graduates' Employability

Developing students' employability skills is a significant responsibility of educational institutions in modern times. In technical institutions or programmes that demand technical skills, employability skills are a combination of hard or technical skills and soft skills, which have already been referred to as necessary for landing and keeping a job (Pieterse & van Eekelen, 2016). Hence, developing employability skills in graduates is the most required approach to ensure competitiveness in the 21st-century industrial global market (Ismail & Mohammed, 2015). TVET is widely recognised in South Asia as one of the most effective means of providing skills and education to women for quick employment (Sadekin et al., 2020). However, many controversies surround gender employability, especially in the context of TVET. While Hartl (2009) noted that enhancing employability skills among deprived youths in rural communities, especially women, is a prerequisite for mitigating poverty and inequality, whether students who studied TVET-related courses are successful in the labour market is still being determined. Gender has been recognised to play a significant role in soft skills, such as big data, in human resources (Hong, 2016). Globally, women's labour market participation is declining, contributing to wider financial disparities (World Economic Forum, 2019; Faulkner et al., 2022). According to research by (Bennett et al., 2022), female students are more self-aware and academically self-sufficient in their employability than their male counterparts. However, they need more confidence regarding digital literacy as an employability skill.

Nevertheless, several findings have indicated that gender plays different roles in soft skills, TVET, and general graduate employability. Uzoechi's (2015) findings suggest that male students exhibited better employability than female students in self-management, communication skills, computer skills, planning, and organisation. Female students exhibited better employability in problem-solving, teamwork, taking initiative, and enterprise. Similarly, Idiaka and Uzoechi (2016) found that male students acquire more employability skills than their female counterparts. They referred to employability skills as work readiness in measures of attitudes, communication, problem-solving, leadership, emotional intelligence, and level of knowledge (Idiaka & Uzoechi, 2016). Ismail et al. (2020) found that male students of a TVET school offering different courses were more ready and, hence, exhibited more employability than female students. However, female students dominate employability areas such as thinking, experience, collaboration, and teamwork. Other factors aside from soft skills discovered to impede the employability of female TVET graduates are the reproductive nature of women and the nature of courses they studied, which yield lower than those usually studied by males (Frances, 2018). Gender was discovered to substantially impact how students perceive various soft skills required to gain employment after graduation (Bahyah & Ahmad, 2013).

Several findings have highlighted the relationship between gender, TVET graduates' employability, and soft skills (Idiaka & Uzoechi, 2016; Ismail et al., 2020), where most findings establish different interactions among the variables. Students' perceptions of employability were found to be highly influenced by gender. The results show that male students have a higher level of students' self-perceived employability (Pitan & Muller, 2020). In a related study, the connection between students' entrepreneurial spirit and employability in higher education was significantly mediated by gender (Santos-Jaén et al., 2022). According to Murgor (2013), male TVET graduates acquire skills mostly in areas considered to involve critical thinking, numerical, ICT, and management skills, while their female counterparts acquire skills mostly in areas requiring them to organise and work in a team. However, the 21st-century industry emphasises the scientific profile as a requirement for competitiveness in the labour market (Ismail & Mohammed, 2015). Thus, male TVET graduates have an advantage over female TVET graduates. Graduate employability and soft skills have also been established to overlap due to the changing nature of work (Martin et al., 2019). Hence, there is a direct interaction between some of the elements of TVET graduate employability and soft skills. TVET graduate employability includes technical skills, which form the core curriculum of technical educational institutions, and generic or soft skills needed to thrive and survive in the workplace (Ismail & Mohammed, 2015).

Meanwhile, soft skills involve a wide range of intangible skills that are essential in the workplace despite the difficulty in measuring them. Vasanthakumari (2019) listed soft skills as communication, teamwork, professional ethics, interpersonal skills, time management, leadership, creativity, conflict resolution, self-motivation, decision-making, problem-solving and self-confidence. It has already been established Uzoechi (2015) that male TVET students ranked higher than their female counterparts in the aforementioned soft skills except in communication, enterprise and initiative. Hence, gender does not moderate the relationship between graduate employability and soft skills since soft skills and graduate employability already overlap.

H<sub>02</sub>: Gender does not statistically and significantly moderate the link between soft skills and TVET graduates' employability

## 1.7 School Type Moderates the Correlation between Soft Skills and TVET Graduates' Employability

Countries run TVET institutions based on their approach to preparing students for 21st-century global competitiveness. The Australian TVET system, for example, operates within a well-regulated framework of qualifications and standards for occupations considered non-professional (Brewer & Comyn, 2015).

Meanwhile, most developing countries in Africa, such as Botswana and Nigeria, run informal TVET programmes, and TVET programmes are integrated into traditional educational institutions (Ismail & Mohammed, 2015; Oketch, 2017). As a result of the variation in types of TVET schools, it is necessary to investigate how TVET school types moderate the correlation between TVET graduate employability and soft skills. Two TVET provisions currently exist in Botswana: technical colleges and Brigades. Attendees of Brigades perceive that the TVET version is accorded fewer resources than the Technical Colleges, which have the government's attention (Ngati, 2015). Findings by Ngati (2015) also show that lecturers have a positive perception of TVET programmes in technical colleges compared to brigades. Thus, it indicates a direct relationship between types of TVET schools and graduate employability, given that the more innovative TVET programmes produce the most employable graduates. In Chile, TVET, called Vocational and Educational Training (VET), includes secondary, tertiary, and workplace VET systems (Brewer & Comyn, 2015). Challenges in the system are notable with secondary and tertiary VET programmes, such as low graduation rates and weak labour prospects. In addition, employability issues in some specialities draw another direct relationship between the type of TVET schools and graduate employability. However, the overlapping relationship between graduate employability and soft skills discussed earlier implies that the type of TVET school needs to moderate the relationship between the two variables. In South Africa, findings showed that students who studied education displayed the highest level of SPE (Pitan & Muller, 2020). In Malaysia, the student's impression of soft skills was significantly influenced by the type of schools they attended (Bahyah & Ahmad, 2013). In Kenya, male students acquired skills in many areas, such as interpersonal, ICT, critical analysis, numerical data use, and management skills. In contrast, female students acquired significantly higher skills in teamwork, organisational skills, and academic qualifications than male students (Murgor, 2013). For male and female students to have equal access to TVET training, it was recommended that technologies and equipment be designed to make it equitable for them to succeed (Trasmonte & Fajardo, 2023).

In Botswana, TVET brigades and colleges are essential institutions for education and skill development, but they have some key differences (Botswana Country Report, n.d.). TVET Brigades provide practical and hands-on training in various technical and vocational fields. They aim to equip students with specific skills and knowledge needed for the job market. TVET Colleges offer a broader range of academic and technical programmes, including diploma and degree programmes and vocational courses. TVET Brigades programmes are typically shorter in duration and may lead to certificates or short diplomas. They are designed to get students job-ready quickly

(Human Resource Development Council, 2021; Human Resource Development Council of Botswana, 2019; Legg-Jack, 2014; UNESCO-UNEVOC, 2012).

Meanwhile, Colleges offer longer-term programmes, including diploma and degree courses that can take several years to complete. The entry requirements for TVET brigades are generally more flexible and may require lower academic qualifications. They often admit students with a focus on their practical skills and interests. In contrast, Colleges have stricter entry requirements, including higher academic qualifications such as the Botswana General Certificate of Secondary Education (BGCSE) or its equivalent. TVET brigades offer a highly specialised curriculum for specific trades or vocations, such as plumbing, welding, automotive repair, and more. Colleges offer broader academic and technical programmes, including business, healthcare, engineering, and other fields. The qualifications obtained from TVET brigades are often well-recognised in the job market and industry-specific. TVET brigades prepare students for specific trades and professions that make them employable and self-reliant after graduation. Degrees and diplomas obtained from colleges may provide broader career opportunities and may be required for certain professional positions or further academic pursuits. Generally, TVET brigades do not offer degree programmes but primarily focus on certificate and diploma programmes. Meanwhile, Colleges offer degree programmes in various fields, including bachelor's degrees, which can lead to higher-level career opportunities. Both types of schools play a vital role in individuals' education and skill development, but they cater to different needs and preferences (Awodiji & Magogodi, 2023; Chitema, 2021; Government of Botswana, 2022; Human Resource Development Council, 2021).

H<sub>03</sub> School type (Tech College and Brigade) does not statistically and significantly moderate the relationship between soft skills and employability

## 2. Methods

A survey was conducted among 2829 students from Botswana technical colleges and brigade schools. Post-secondary school in Botswana offers TVET programmes leading to certificates and national diplomas. A one-year Brigade program awards a certificate, while a two-year technical college program awards a national diploma. Male and female respondents from both TVETs in Botswana were included in the diverse sample to ensure generalisability. The Botswana government is divided into ten districts. The study, however, only included five districts with TVET schools. A statistical formula developed by Taro Yamane was used to calculate the sample size. Respondents were contacted using a simple random sampling technique.

$$\text{The formula: } n = \frac{N}{1 + N(e)^2}$$

Where "n = sample size," "N = population under study," "e = margin of error." Hence, 2829 subjects represent a 5% error margin sample size and a 95% confidence level (Uakarn et al., 2021). Based on this calculation, 351 constitutes the minimum sample size for generalising the results. An appropriate sample should be selected rather than examining the entire population (Acharya et al., 2013). Thus, random and convenience sampling techniques were used to select the respondents. With the aid of a research assistant, each school was accessed by approaching the school principals for permission to distribute the survey to the students.

### 2.1 Sample

There were 57.8% in the Brigades and 42.2% in the Technical Colleges among the study's respondents, who were split 56.0% male and 44.0% female. 60.2% of respondents in the study had only spent a year on their programs, 35.8% had completed two years, and 4.0% had completed three years. 60.0% of the respondents were 30 or younger, 30.9% were 31 to 40 years old, 6.1% were 41 to 50, and 3.0% were over the age of 51.

This study used an adapted "Soft Skills and TVET Graduate Employability Questionnaire" (SSTGRQ) (Asefer & Abidin, 2021; Oluwalola & Awodiji, 2021; Nugraha et al., 2020) to collect data from the sampled respondents. A, B, and C were the three components of the questionnaire. The information in Section A was based on the respondents' demographics, including age, gender, study programme, and TVET form. Graduates' employability was covered in Part B, which included 26 items, while Soft Skills were the subject of Section C, which included 37 items derived from prior empirical research. The 5-Point Likert Rating Scale was employed. The rating system reads as follows: 1 = never, 2 = seldom, 3 = occasionally, 4 = often, and 5 = constantly.

Validity is the extent to which findings from data analysis are consistent with the study's variables (Mugenda & Mugenda, 2009). Hence, academics in educational leadership and management, research testing and evaluation, industrial psychology, TVET, psychology, and guidance and counselling were given the instrument for face-to-face and content validity. Hence, their recommendations were implemented as suggested.

Ordinal alpha was used to assess the instrument's reliability at 0.89 and 0.77 coefficients, respectively. Because the alpha values for the two outcomes were more significant, 0.7, they were deemed credible. In light of

this, the scale's internal consistency is great (DeVellis, 2003; Pallant, 2011; Uakarn et al., 2021). A few questions that can cause familiarities, social desire, habituation, and confirmation bias were reworded to prevent bias in respondent responses. Moreover, the researcher was not involved in the instrument's administration; educators and class representatives did it. In addition, researchers had no control over respondents' answers. The factors of the questionnaire items were eliminated to prevent swaying respondents' answers. Lastly, the researcher and respondents had never met.

Data analysis was carried out using IBM SPSS 27 software, following the research hypotheses. Data entry and coding into a spreadsheet were the first steps in the data analysis process. Data was then edited and scrutinised to account for missing data and outliers. The profile of the respondents was examined using descriptive statistics of frequency and percentage. At the 0.05 significance level, the inferential statistic of regression was utilised to evaluate the hypotheses with the aid of process procedure for SPSS version 4.0 by Hayes (Hayes, 2022). An advanced regression model that tests for interaction is a regression with a moderator, but what is a moderator? Hayes (2017) defined a moderator as "Any effect of X (soft skills) on Y (graduate employability) depends on or can be predicted by W (gender and school type). Hayes model 2 was employed to establish the moderating effect of gender and TVET school type on the strength of the association between soft skills and TVET graduates' employability. As a result, continuous variables of soft skills (independent), categorical variables of gender and school types (Moderators), and TVET graduate employability (dependent) consist of continuous factors (Hayes, 2017).

### 3. Results

H<sub>01</sub>: Soft Skills do not significantly enhance TVET graduates' employability

**Table 1** Correlation between soft skills and TVET graduates' employability

Variable	N	M	SD	Employability
Employability	351	3.44	0.45	1
Soft Skills	351	3.44	0.45	0.45*

Soft Skills \* $p < .05$

According to Table 1, TVET graduates' employability and soft skills are positively linked,  $r(351) = .45, p < .05$ . This implies that TVET graduates with higher soft skills are more employable.

H<sub>02</sub>: Gender does not statistically and significantly moderate the relationship between soft skills and employability.

**Table 2** Moderating effect of gender on the relationship between soft skills and employability

Model Summary						
R	R-sq	MSE	F	df1	df2	p
.46	.21	78.45	28.96	3.00	323.00	.00
Model						
	coeff	Se	T	P	LLCI	ULCI
Constant	67.36	13.07	5.15	.00	41.65	93.07
Soft skills	.30	.10	3.01	.00	.10	.50
Gender	-.61	8.31	-.07	.94	-16.95	15.73
Int_1	-.02	.06	-.28	.78	-.14	.11
<i>Dependent: Employability; Int_1: Softskills * Gender</i>						
Test(s) of highest order unconditional interaction(s):						
	R2-chng	F	df1	df2	p	
X*W	.00	.08	1.00	323.00	.78	



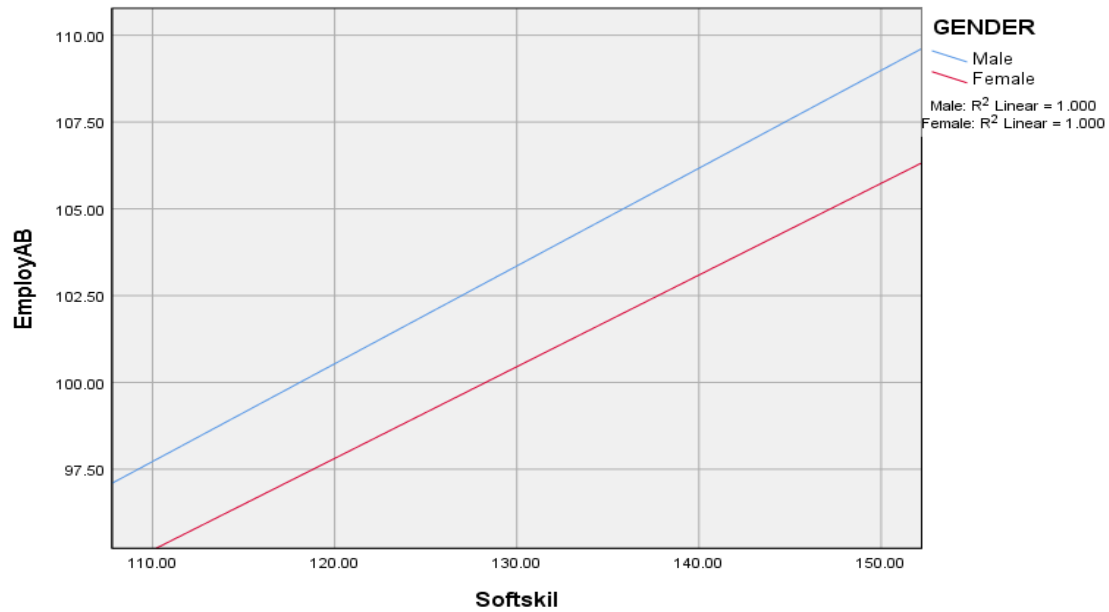


Fig. 2 Insignificant moderating effect of gender on soft skills and employability

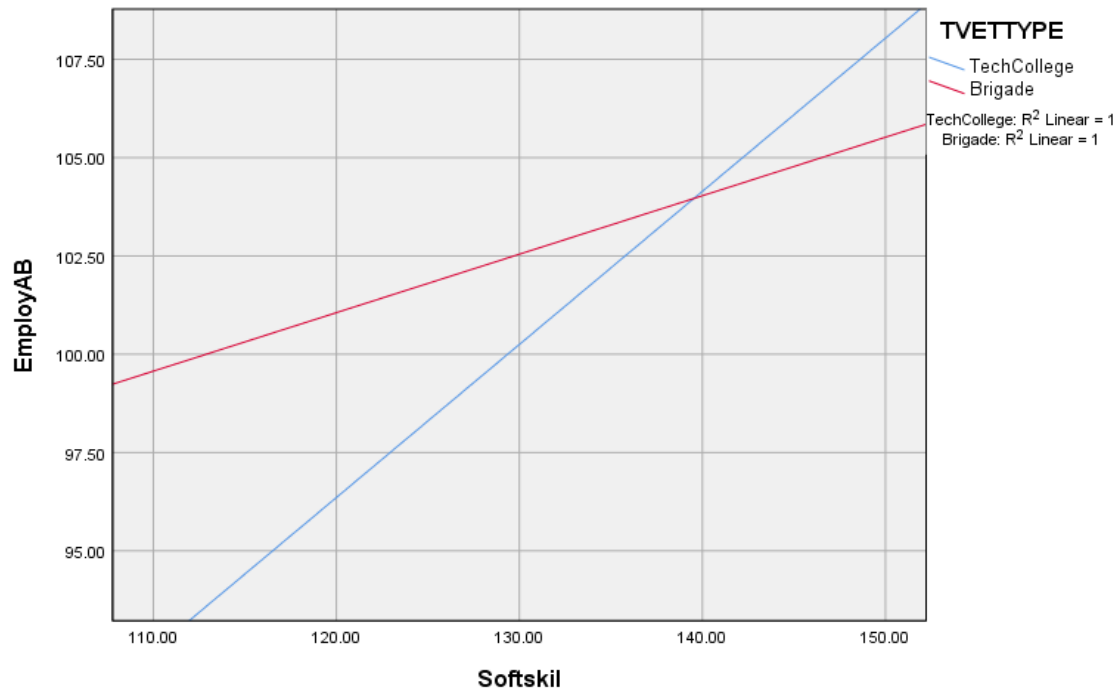
Table 2 illustrates the moderation effect of gender (male and female) on the correlation between TVET graduates' employability and soft skills. The results revealed a negative and insignificant moderating effect of gender on the correlation between soft skills and graduates' employability ( $b = -0.02$ ,  $t = -0.28$ ,  $p = 0.78$ ), supporting  $H_01$ . Further, the test of unconditional interaction shows that the change in R-Sq due to interaction (Soft skills\*gender) is also not significant ( $R\text{-chng} = 0.00$ ;  $F = 0.08$ ;  $p = 0.78$ ). The result indicates that male and female TVET students are similar in the likelihood of a correlation between soft skills and employability after graduation. Thus, the hypothesis was accepted. This implies that gender, in terms of male and female, did not moderate the connection between TVET graduates' employability and soft skills. Moreover, it suggests that male and female TVET students are similar in their judgement that soft skills have potential for employment after graduation. Thus, male and female TVET students agree that soft skills acquisition before graduation will provide them with employment opportunities.

$H_{03}$ : TVET School type (Tech College and Brigade) will not statistically significantly moderate the relationship between soft skills and employability.

Table 3 Moderating effect of school types on the relationship between soft skills and employability

Model Summary						
R	R-sq	MSE	F	df1	df2	P
.4843	.2346	76.2044	32.9935	3.0000	323.0000	.0000
Model						
	Co-eff	Se	T	P	LLCI	ULCI
Constant	16.0415	13.0296	1.2312	.2192	-9.5922	41.6751
Soft skills	.6301	.0977	6.4496	.0000	.4379	.8223
TVET type	33.5853	8.7999	3.8166	.0002	16.2730	50.8976
Int_1	-.2407	.0676	-3.5630	.0004	-.3736	-.1078
<i>Dependent: Employability; Int_1: Soft skills * TVET Type</i>						
Test(s) of highest order unconditional interaction(s):						
	R2-chng	F	df1	df2	p	
X*W	.0301	12.6953	1.0000	323.0000	.0004	
Conditional effects of the focal predictor at values of the moderator(s):						
TVET TYPE	Effect	Se	T	P	LLCI	ULCI
Tech College	0.3894	0.0407	9.5565	0.0000	0.3092	0.4696
Brigade	0.1487	0.0539	2.7601	0.0061	0.0427	0.2547

Table 3 shows that TVET school type (Tech College and Brigade) moderates the nexus between soft skills and graduates' employment prospects. The results revealed a negative but significant moderating effect of TVET school type on the relationship between soft skills and employability ( $b = -0.241$ ,  $t = -3.563$ ,  $p = 0.0004$ ), supporting  $H_01$ . Further, the test of unconditional interaction shows that the change in  $R^2$  due to interaction (soft skills\*school type) is also significant ( $R\text{-chng} = 0.0301$ ;  $F = 12.695$ ;  $p = 0.0004$ ). Similarly, the conditional effect of soft skills at values Tech College and Brigade was statistically significant. Therefore, the proposed hypothesis is rejected. The results in Table 3 show that Tech College and Brigade TVET students are different in their likelihood of soft skills promoting employment opportunities after graduation. This implies that TVET school type, in terms of Tech College and Brigade, moderates the relationship between soft skills and graduates' employability. Thus, technical college students demonstrated that soft skills would increase their chances of employment after graduation compared to Brigade students.



**Fig. 3** Significant moderating effect of TVET type on soft skills and employability

A graphical representation of the interaction between TVET types (Tech College and Brigade) and soft skills and employability is presented in Figure 3. In the figure, soft skills and graduates' employability are significantly influenced by TVET school type.

#### 4. Discussion

The study evaluated how soft skills can improve TVET graduates' employability using gender (Male and Female) and school type (Technical colleges and Brigades) as moderators. According to the study, soft skills can significantly improve TVET students' employment after graduation in the world of work. As a result, the better soft skills students possess, the better their employability chances are after graduation. As a result, a TVET curriculum that teaches these soft skills will significantly enhance students' employability. The findings corroborated the study by Awodiji and Magagodi (2023), demonstrating a significant relationship between graduates' employability and soft skills acquisition. In addition, Oluwalola and Awodiji (2021) discovered that educators with soft skills had a better likelihood of moving up the career ladder. Therefore, TVET graduates will have a better chance of employment if they possess higher soft skills. Succi and Canovi (2020) argue that soft skills can enhance graduates' employability.

Furthermore, the result revealed an adverse and inconsequential moderating effect of gender on the link between soft skills and TVET graduates' employability. The assessment of the relationship between soft skills and graduates' employability indicated that the relationship is similar between male and female TVET students. It thus implies that the interaction between soft skills and gender will not significantly strengthen or weaken the graduates' employability.

Moreover, it suggests that gender in terms of male and female students did not moderate the connection between graduates' employability and soft skills (communication, leadership, creativity, and innovation, problem-

solving, self-awareness and adaptation to change). It infers that male and female TVET students' soft skills are similar in their employability chances after graduation. Further, gender moderating effects do not enhance the link between soft skills and TVET graduates' employability. Hence, it could be deduced that gender does not influence students' soft skill acquisition and their potential for employment after graduation to meet the demands of the 4.0 industry. Thus, regardless of their gender differences, these soft skills will increase their employability.

The findings contradicted Idiaka and Uzoechi (2016) and Ismail et al. (2020) that gender, TVET graduate employability and soft skills had significant interactions. In addition, students' perceptions of employability after graduation were found to be considered subjective by gender, with an indication that male students have a higher level of employability perception (Pitan & Muller, 2020). A study found a significant mediation effect between entrepreneurship and graduate employability (Santos-Jaén et al., 2022). Therefore, the differences in the studies may be informed by several factors, such as the instrument used by the authors, the research method adopted cum the analysis, among many other elements.

In addition, to ascertain if the type of TVET school in Botswana moderates the link between graduates' employability and soft skills. School type moderates the nexus between soft skills and TVET graduates' employability. This infers that school type supports the link between TVET graduates' employability and soft skills. Using the conditional effects of soft skills on TVET graduates' employability at Hayes Process software values, the difference in the moderator variable was confirmed due to the significant interaction effect. This indicates that the correlation between soft skills and graduates' employability favours technical college students. Technical college students see the likelihood of soft skills providing employment opportunities after graduation more than brigade students. The strong effect of technical colleges could result from the certification. Technical colleges are expected to produce graduates with National Ordinary Diplomas and degrees, which will either make them self-employed or employed by another organisation after graduation. Like Brigade, the graduates are awarded Trade Test C and are expected to be artisans after graduation. The duration of the programme, where technical colleges' programmes run for two years, which gave room for induction and internship programmes before graduation, could have contributed to the strong effect of technical colleges on the relationship between the variables. In addition to this, students of Brigades perceive that the TVET version is accorded fewer resources compared to the Technical Colleges, which have the government's attention (Ngati, 2015).

In South Africa, the study outcome disclosed that students' perceptions of the importance of acquiring employability skills after graduation varied based on the programme studied (Pitan & Muller, 2020). In Malaysia, students acknowledged that soft skills significantly vary depending on the type of schools (public and private schools) they attend (Bahyah & Ahmad, 2013). Thus, the relationship between soft skills and graduates' employability differed between technical colleges and brigades TVET schools. The students of technical schools expressed that soft skills would promote their employability chances after graduation more than their counterparts from brigade schools. In addition, the students from Brigades may believe they are entering the labour market as artisans and self-reliant graduates who see no demand for soft skills. The students of technical schools indicated that soft skills would promote their employability chances after graduation more than their counterparts from brigade schools.

## 5.2 Conclusions and Implications for Theory and Practice

In Botswana, the relationship between the employability of TVET graduates and soft skills was examined with the help of gender and school type as moderating variables. This study sought to determine whether the relationship between soft skills and graduates' employability differs in terms of gender and school type. It was discovered that developing soft skills will significantly improve TVET graduates' employment prospects after graduation. Also, the association between soft skills and graduates' employability did not vary between TVET male and female students. However, school type significantly moderated the link between soft skills and the employability of TVET graduates. The level of soft skills promoting TVET graduates' employability varies depending on the type of school. Therefore, the employability assumption underpins the investigation based on developing, acquiring, and comprehending relevant soft skills that will enhance TVET graduates' job prospects immediately after their studies. Increasing graduates' employability requires them to acquire pertinent skills. The literature on human capital emphasises employees' abilities, capacities, skills, and capacities for innovation.

TVET graduates' employability will increase as soft skills are added to their hands-on training. TVET graduates' employability chances after graduation are significantly influenced by soft skills such as "communication, leadership, critical thinking, and problem-solving, among other factors". TVET graduates develop soft skills in school that are crucial to their employability in the workplace, regardless of gender. After graduation, TVET graduates with these skills can find great relevance in the competitive workplace. The skills will also enable them to succeed more in any job (self-employed or employed). The study adds to the knowledge on how soft skills can prepare TVET graduates for work right after graduation. Also, gender does not necessarily influence the link between graduates' employability and soft skills.

Moreover, the association between the two variables was moderated significantly in favour of technical colleges. Professional organisations, governments through their agencies, and TVET programme managers must provide the right soft skills training for teachers at Brigade TVET schools since soft skills are transferable skills. This will allow TVET graduates to be prepared for the world of work. To promote TVET graduates' employability, TVET managers should stay up-to-date with this model. In addition, the Brigade curriculum requires urgent revamp to accommodate for soft skills that will prepare graduates for the employment demand of 4IR. Finally, future studies should include mediating factors such as curriculum implementations, work-integrated learning, leadership approaches, resource utilisation, and orientation programmes. Soft skills' importance for students' employability after graduation can also be empirically examined qualitatively.

### 5.3 Limitations

The following factors limit the scope of this study: To generalise the results across Botswana, the sample size needs to be more significant. Self-assessment is used. Thus, stakeholders such as employers, graduates, and educators can be surveyed on the mediating effect of gender and school types on the link between observed variables. Several students refused to participate in the study. Due to induction programmes or attachments, some students were off campus. In addition, distance and logistics prevented us from reaching other schools.

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### Conflict of interest

The author wishes to confirm that there are no known conflicts of interest associated with this publication.

### Author Contribution

*The author confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.*

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