

## AN INVESTIGATION INTO THE FACTORS INFLUENCING THE PARTICIPATION OF BLACK FEMALE TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET) STUDENTS IN SOUTHERN KWAZULU-NATAL (KZN) IN SOUTH AFRICA

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### ABSTRACT

This study aims to identify the factors influencing the participation of black female TVET students, using a case of a TVET college in Southern KZN. It adopts a human development approach to understand the capabilities, freedoms, and functionings available to black female students at this specific TVET college. The study was prompted by high dropout rates among black female TVET students and a disproportionate gender profile in skills programs. Furthermore, it contends that empowering black female students with capabilities allows them to express what they value and have gained from TVET colleges, not only in their current lives but also in their future lives. This is crucial for addressing the prevailing gender disparities in the country. The study was conducted using a descriptive case study design, and the data was gathered through semi-structured interviews with final-year black female engineering and primary agriculture students at ABC (pseudonym) TVET College. The data was analyzed thematically, with data collection concluding after reaching saturation with ten participants. Surprisingly, the findings indicate that, in this particular college, the participation of black female students is not necessarily low. Therefore, gender no longer serves as a barrier to the participation of black female TVET students in skills programs at the college. Instead, the students effectively juggle their educational responsibilities with domestic chores while exerting considerable effort to participate and excel in their studies. This showcases women's ability to exercise agency despite facing constraints in their opportunities. The study recommends addressing the persistent societal perception that domestic chores are solely the responsibility of women to enhance women's participation in their educational pursuits.

**Keywords:** *Black female TVET students, freedoms, gender, participation, TVET, success, Southern KZN, capabilities, women*

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## INTRODUCTION

Globally, education has been identified as a key to attaining sustainable development, with Technical and Vocational Education and Training (TVET) serving as one of the master keys (Nzembe, 2018; Ngugi & Muthima, 2017). Nzembe (2018) asserts that in South Africa, TVET colleges offer the most viable training programs for developing a group of creative and innovative people with the necessary entrepreneurial capacity for sustainable development. Nzembe (2018) also highlights that TVET colleges are required to provide industry-related education as well as training programs to learners who dropped out of school before completing Grade 12, learners who accomplished their Grade 12 but could not qualify for university enrolment, and employed people who want to improve their skills and knowledge while also improving their quality of life. As a result, a large proportion of the South African population must be exposed to TVET.

Unfortunately, since apartheid, black female students in South Africa have been significantly underrepresented in education generally and TVET in particular (DHET TVET College Website, 2021). The participation and success of black female students have been identified as low in the TVET colleges. It can be argued that this limited training of black female students in TVET has deprived South Africa of the full benefits and contribution of women to sustainable development. The 2020 annual report of the Department of Higher Education and Training (DHET) confirms this backdrop, arguing that there is limited empirical research on the social factors that lead to low participation and success rates among black female students in South African TVET colleges. In light of this, an empirical investigation of the factors that affect the participation of black female students in the South African TVET colleges is required.

TVET education provides people with skills to improve their lives by supporting them in becoming economically productive and thus escaping poverty and marginalisation. Individuals with skills become entrepreneurs, employees, and informed citizens who contribute to a country's economic and long-term development (Nzembe, 2018). As a result, human development through TVET contributes not only to economic development and job creation but also to increased social inclusion.

Women are estimated to account for half of the world's population, they make up two-thirds of the global workforce while earning one-tenth of global revenue, and they own one-hundredth of global property (Ngugi & Muthima, 2017). These imbalances can be traced back to unequal training opportunities, access, involvement and success in education. For example, according to a study done in Kenya by Ngugi and Muthima (2017), despite recent continuous advancement from this status over time, female participation in TVET science, technology, engineering and mathematics (STEM) programs shows that females are still underrepresented and occupy the medium and lower status. Another study indicates that a high proportion of women work in low-wage jobs, while others engage in early marriages, sex work, and child labour (Adelakun, Oviawe, & Barfa, 2015). Research

by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 2020 confirms this, indicating that male students outweigh female students in 91% of countries worldwide, despite increased parity in enrolment in higher education and STEM subjects.

In addition, female participation in STEM-related fields and vocational choices are low in industrialised countries such as the UK (Matenda, 2019). This disparity is due to gender bias in the curriculum, classroom pedagogy, and the educational system's failure to provide support for the development of female learners' self-esteem, confidence, and aspirations throughout their formative years (Ngugi & Muthima, 2017). Female underrepresentation in TVET is thus a problem in both developed and developing nations, including South Africa. Despite the affirmative actions taken over time, many gaps, challenges, and inequalities still exist, making this study crucial in examining the challenges regarding the participation of black female students in TVET colleges in the context of South Africa and suggesting solutions.

The paper is divided into five sections. Following this introduction, there is a brief literature review on African women's participation in education and a discussion of factors influencing the participation of female students in skills programs in South Africa. Section 3 discusses the methodology. Particularly, it discusses the theoretical foundation followed by this study, the sample, the data collection technique used, and how the research data were analyzed. The findings are presented and discussed in Section 4. Section 5 concludes the study.

## LITERATURE REVIEW

This study is theoretically based on a human development approach. Human Development Approach in TVET sets a paradigm for the vocational training system in which students are recognized as human beings with capabilities that can be cultivated and grown, rather than from a human capital viewpoint that focuses on students' immediate productivity. This approach emphasizes equipping students with life skills through the TVET curricula, such as skills for ensuring a person's well-being, maintaining a healthy life, coherence, and building peace and harmony with fellow humans. Previous studies on the human development approach in TVET established that the approach is conducive for delivering a more holistic understanding of development as people-centered and sustainable, reflective of both life within the context of the present and the future.

Human development and empowerment are complementary concepts that are subjected to frequent scrutiny. The term "development" has been used more commonly in the economic sense, and while empowering refers to the enhancement of the capabilities of existing human resources. Development exposes the acquired competencies of people whereas empowerment refines them. When empowerment remains to be in an isolated form it is exposed in the small pockets of the pre-existed quality of life. Education and training are identified as core enablers of the empowerment process (Clausen, 2020). This line of thought has observed that

empowerment is more encompassing than quantitatively enhancing; instead, empowerment lies in the qualitative grounds, and education and training are core enablers if people have the freedom to choose their paths and decide on their functions and spaces within the social fabric. Human development is a development model with a focus on human beings, concentrating both on enhancing students' proficiency as well as reinforcing the self-image regarding what TVET students can do better and beyond so as to be actively involved in the desired field, cutting cultural tabs to loser frequencies. And aspirants become innovative and creative in their practices with a focus on student-centered development approaches with physical, cognitive, academic as well as personal assets strengthening for enhancing their employability.

Empowerment is central to achieving gender equality and helps to shape more inclusive, peaceful and resilient societies. Nepal has a formal commitment to gender equality and women's empowerment, yet social norms remain the main barrier to women's and girls' equal rights and opportunity. The labour force participation rate for females was 27.5 per cent, and the unemployment rate was 4.3 per cent (Karna and prakash, 2021). Moreover, gender-based occupational segregation is stark in Nepal: a significant majority of working females are occupied in low skilled occupations in Agriculture, Wholesale, Roman Trade, Fishing, Restaurant, and Hotel, Repair, and Personal Services, alike. Therefore, this study was chosen to observe the significant triangle of Women, particularly black women, skill education (Education, Training, vocational education – TVET), Empowerment, and overall national educational growth and natural economic development. No previous study has examined the current scenario of black female TVET students in the light of the human development approach, precisely in South Africa (Lwamba et al., 2022).

### ***Participation of African Women in Education***

For decades, academic debate has raged on black women's access to, participation in, and success in African education systems (see, for example, O'Brien, Blodorn, Adams & Garcia, 2015; Cornwall, 2016; Ngugi & Muthima, 2017; Mutenda, 2019). Despite their lack of empowerment and repression, African women have made significant contributions to the development of African society (see, for example, Okorafor, Okorafor, Ike, & Obi, 2014; Chopra & Muller, 2016; Cornwall, 2016; Duflo, 2012). Subsistence agricultural activities, food processing, and distribution are all areas where African women shoulder a large share of the burden. Okorafor *et al.* (2014) argue that African women do all these tasks together with their traditional roles of procreation and home management. They are inherently entrepreneurial, to say the least. As a result, the extent to which women can contribute to sustainable development can only be envisaged if they are given the necessary empowerment and equity as men.

Women's willingness, passion, and ability to take part actively in national development are influenced by various factors, the majority of which, as Ngugi and Muthima (2017) acknowledge, are social and educational. Because of unequal access

to opportunities, some of these elements may have been imposed exogenously. Gender equality, according to the World Bank (2020), is a problem of development effectiveness, not only political correctness or women's rights. Thus, the study seeks to examine the participation of black female students at South African TVET colleges using empirical evidence from black female learners in southern KwaZulu-Natal (KZN). As McGrath and Powell (2016) point out, the goal is to go beyond human capital theory, which frames TVET education, and adopt a larger objective of human development that values the contribution of women in sustainable development. Furthermore, appreciating the achievements of black women in the areas of social, political, economic, and leadership is a vital part of human capital development (Ngugi & Muthima, 2017).

### ***Participation of Female Students in STEM Programs in South Africa***

Although UNESCO (2015) indicates that women's access to tertiary and upper-secondary non-tertiary education has increased worldwide, the Department of Women (DoW) (2015) argues that many countries are still struggling to attain gender parity in STEM areas. Matenda (2019) asserts that in South Africa most women seem to prefer non-STEM subjects to STEM subjects. DoW (2015) argues that this should not be regarded as a preference but rather as a challenge in terms of access, participation, and success of female students in STEM-related courses. As a result of apartheid-era inequalities in access to skills training, female students face several obstacles in STEM professions. Due to discriminatory policies and societal norms, women have also faced hardships in the country (DoW, 2015). Based on the National Senior Certificate results (2009-2013), men outperform their female counterparts in mathematics and physical sciences (Matenda, 2019; Department of Basic Education, 2013). Science and mathematics subjects, for example, are requirements for STEM-related courses, and they have an impact on gender ratios in tertiary and upper-secondary education, which will ultimately influence who enters the scientific and engineering industries.

Due to the belief that technical abilities can play a vital role in development, considerable literature in the discipline of engineering has been produced in South Africa (see, for example, Jawitz, Case & Tshabalala, 2000; Lubben, Davidowitz, Buffler, Allie & Scott, 2010; Martineau, 1997; Matenda, 2019; Nzembe, 2019). However, research on female students' participation and success in the field of technical skills, particularly in TVET colleges, has lagged. Studies have been conducted to gain a better understanding of female students' experiences in and through higher education, predominantly in universities, but not specifically in TVET colleges. However, empirical research even at universities shows similar trends of low female students' participation in the field of technical skills (Matenda, 2019).

Martineau's (1997) study, for example, looked at the participation of female students in scientific and engineering courses at South African universities and found a significant gender gap in these courses. The study also highlighted that

African women were disproportionately excluded from science courses in higher education, and argued that if this trend continues, women will continue to be marginalised. Jawitz *et al.* (2000) also conducted a study at a specific university to better understand women's career choices. If they were qualified to enrol in engineering courses, most women did not choose it as a career path. The majority of those who responded were first drawn to medicine rather than engineering. The promotion of engineering as a vocation, according to Jawitz *et al.* (2000), is suggested since it involves working with people and has strong career prospects. Another key conclusion of this study was that gender, race, and socio-economic background all had an impact on career choice. The few black women who selected engineering, for example, sought to contribute to society and demonstrate their worth in an industry dominated by white males. The study of Lubben *et al.* (2010) is consistent with Jawitz *et al.* (2000): both studies looked into the factors that influence science students' decisions to continue with a course. According to their findings, there is a link between career inclination and study persistence. Gender issues, on the other hand, were only mentioned in passing in these studies.

An investigation undertaken by Jawitz and Case (1998) looked into the reasons why women picked engineering as a professional path. Data showed that they chose engineering because it allowed them to make a difference in society. The study suggested that engineering be presented to women as a women-friendly career. Shackleton, Riordan and Simonis (2006) interviewed university female engineering students and concluded that the academic environment was quite friendly and accepting. The sole issue mentioned was the overwhelming quantity of work, to the point where several students considered dropping the course. Shackleton *et al.* (2006) went on to say for many young women, engineering is perceived as a male-dominated, academically demanding environment.

A Human Sciences Research Council (HSRC) research project (Chisholm, Hoadley, Lewin, Moletsane, Haupt, Mawoyo and Moorosi, 2007) that looked at three universities in South Africa was another milestone in higher education research concentrating on women in engineering. To learn more about the experiences of women in higher education, this study focused on engineering and science degrees. Even though women had easy access to higher education, it was the higher ratio of women in the humanities, health, and social sciences that sparked interest in this area. According to Chisholm *et al.* (2007), gender imbalance was not observable at the institutional and departmental levels. Young women are not distant, alienated or uninterested in the institution; rather, they have a high level of social and intellectual integration as well as a great affinity with it (Chisholm *et al.*, 2007). Study participants showed a strong sense of autonomy and independence, according to Chisholm *et al.* (2007). They were also able to better understand the challenges faced by women in higher education.

Even though the empirics mentioned above have helped to a better knowledge of women's experiences and participation in engineering at universities, there is still limited knowledge about the perceptions of female TVET college students. As a

result, in this study, the perceptions of female TVET students rather than those of the lecturers and other college staff are emphasised. Following Matenda (2019), the study uses human development theory to unpack both economic and non-economic values of education in women's lives, as opposed to human capital theory which was utilised by the majority of the empirics to unpack the economic values only. In addition, the majority of the studies were quantitative. To this end, investigations to understand the perceptions of female students in the TVET colleges about their participation, which is the topic of this research study, are necessary.

## RESEARCH METHOD

The study's methodology is theoretically underpinned by the human development approach also known as the capabilities approach to understand what capabilities, freedoms, and functionings the black female TVET students in the

Southern KZN had access to. Sen (1999; 2005) refers to the human development approach as a conceptual framework for social justice that differs from utilitarianism and the human capital approach. Individual freedoms can be assessed using the human development approach, which focuses on what an individual can accomplish and their well-being (Sen, 2005). Thus, the human development approach supports education that enhances student's options in all spheres of their

lives while also improving their aspirations. Furthermore, it encompasses the economic and non-economic benefits of education to students. As indicated by Matenda (2019), it is therefore crucial to assess the social inclusion, as well as the opportunities and freedoms that TVET colleges and the community provide for female students, when evaluating their participation and success in TVET colleges.

The freedoms should be positive in terms of capabilities, taking into account both the opportunity and the process components (Wilson-Strydom, 2017). Individuals can have opportunity freedom or process freedom. Opportunity freedom refers to a person's real opportunities and process freedom refers to their agency and autonomy in deciding how to act in a meaningful and valuable way (Matenda, 2019).

Although the capabilities approach has been applied in many studies in the context of South African TVET colleges, not many such studies paid attention to the participation of black female students. We saw this as a concern because, according to the literature that we reviewed for this study, despite the affirmative measures put in place since the dawn of the democratic era in South Africa, women still seem to be more excluded than men in the realms of society, economy, and education. This implies that the capabilities list created to represent both males and females may be biased, given the history of gender disparity in South Africa since apartheid, and that the list may vary by province.

The study used face-to-face semi-structured interviews to collect data from *ABC* (pseudonyms) TVET College's final-year black female students. For the study, the participants were purposively selected from Engineering Studies and Primary Agriculture. The data was collected until a saturation point was reached, which was reached with ten participants (excluding those interviewed for the pilot survey). Thematic analysis was used to analyze the study's findings.

Thematic analysis is defined by Braun, Clarke, Hayfield, and Terry (2019:843) as a strategy for capturing patterns ('themes') across qualitative datasets. Similarly, Lyons and Coyle (2016) assert that thematic analysis encompasses the detection, analysis, and description of patterns within the data. Themes or patterns in a thematic analysis are considered latent content or the results of data analysis by Vaismoradi and Snelgrove (2019). Thematic analysis aids researchers in deciding on the best qualitative strategy to answer their research question. It is used in qualitative research to analyse data gathered using interviews (see, Azungah, 2018; Braun *et al.*, 2019; Lyons & Coyle, 2016). Following Vaismoradi and Snelgrove (2019), the data for this study was reduced, edited, categorized, and grouped into themes or patterns.

In terms of ethical considerations, participants' rights to self-determination, anonymity, confidentiality, and informed consent were respected throughout the study. Furthermore, the UNISA College of Education Ethics Review Committee approved the study in writing. We also received permission from the ABC TVET College administration to conduct interviews with their students.

## RESULTS AND DISCUSSION

### RESULTS

#### Participation Experiences of Black Female Students in Their TVET Programs

This study looked into the participants' experiences of participation in their TVET programs. This aspect was addressed by asking participants what factors influence their participation in their programs, and four themes were derived as indicated in Table 1 below. The themes are participation factors, success factors, benefits of studying at a TVET college, and gender and race factors.

Table 1.

Participants' Experiences of Participation in Their Programs

Codes	Categories	Themes
Friendly, open, free, confidence, support	Motivators	Participation factors
Scared, judged, laughing, stressed, tired, English	De-motivators	
Few old, computers, COVID-19, online learning	Resources	Success factors
Music, TV, family, friends, house chores	Home environment	Benefits of studying at a TVET college
Interact, study groups, ask questions	Participation	
Fix, grow, skills, gained, on my own, start-up, own, business	Experience and career development	Gender and race factors
Male, female, equal, same, gender	Gender	
Black, race, discriminate	Race	

Source: Authors' compilation



### **Theme 1: Participation factors**

This theme focused on aspects that were found to have a favourable influence on female students' engagement in class, as well as those that discouraged them from participating. There were two sub-themes developed in this theme namely motivators and de-motivates. The sub-themes are presented below.

#### **Motivators**

The majority of participants indicated that they were free to participate in their classes because of the friendliness between themselves and their lecturers.

*"[...] my classmates are friendly and the lecturers are open to talk with them" (Joylady).*

*"During our first days here [at the TVET College] we were scared of the teachers, scared to ask questions from them, but now we are used to them" (Evelyn).*

*"[...] my classmates are so free and they don't judge you when you participate in class" (Tebogo).*

The study also found that confidence and openness are individual characteristics required for effective classroom participation.

*"[...] being open helps me to participate in class..." (Dimpho).*

*"[...] to participate you must be confident..." (Itumelang).*

*"[...] lack of confidence both to male and female learners..." (Gugulethu).*

This sub-theme revealed that female students can effectively participate in a friendly, judgment-free environment. Furthermore, the study discovered that it takes some confidence to participate.

#### **De-motivators**

On the other hand, when asked what discourages them from participating in their programs it was found that judging and laughing at other students may discourage them from participating in class.

*"It happens when you have a presentation, some people in class may laugh at you" (Eve).*

Similarly, Joylady noted that:

*"Some learners laugh at you when you say a wrong answer."*

However, when asked why they laugh, Eve and Doreen indicated that:

*"It is the students' nature which must not discourage you so you have to be confident to participate in class and other program activities" (Eve).*

*"...I am not scared to speak in front of others as I know we are all here to learn..." (Doreen).*

Furthermore, Gugulethu and Doreen stated that they do not undermine one another as students:

*"...in our class, there is no one who looks down upon someone..." (Gugulethu).*

*"...we don't look down upon each other..." (Doreen).*

Gugulethu added that:

*"...we support each other, if you say an answer some will come up with another option, if you fail to answer the question other students will help you..., so that makes you not afraid or scared to participate in class."*

The research also revealed that some female students are less likely to participate when they are stressed or tired.

*"...I don't participate if I have stress and if I am tired..." (Doreen).*

In light of the following responses, another factor that can influence the participation of black female students is the language barrier.

*"...lecturers want us to participate in English, and some we are not good at expressing English..." (Silibaziso).*

Samantha also shared the same sentiments:

*"...not all of us can speak English ... so it's hard to participate."*

It was found that black female students are discouraged from participating due to fear of being judged, exhaustion, and the use of English as a medium of instruction in South African TVET colleges.

### ***Theme 2: Success factors***

This theme encompasses all of the factors identified by the study as influencing black female success in TVET colleges. The theme's finding was presented in three sub-themes: resources, home environment, and participation.

#### ***Resources***

This study found that TVET colleges lack adequate resources to adapt to the learning requirements of the prevailing COVID-19 pandemic and research. Eve talked about this and indicated that:

*"During COVID-19 [lockdown], we were not allowed to attend classes, we were forced to stay at home, at the TVET College we do not do online learning."*

In terms of research, Evelyn mentioned that:

*"Computers are few and very old to conduct research for assignments and we do not have data to do with our phones [smartphone] at home, also we don't have laptops at home."*

Participants stated that the lockdown prompted by COVID-19 hampered their progress because they were unable to attend school remotely. Furthermore, a lack of Information and Communications Technology (ICT) infrastructure makes it difficult for them to conduct research for their assignments and exams.

#### ***Home environment***

Furthermore, it was noted that noise and peer pressure detracted the participants' ability to study while at home.

*"I don't get enough time to study when I am at home because ...it happens that when I try to study people around can play radio" (Eve).*

*"... some are watching TV when you are trying to study, so you end up joining them and the neighbours will be playing music" (Evelyn).*

*"...it's not easy to study at home, where there is TV, family, friends..." (Gugulethu).*

*"Sometimes I'm disturbed when I'm studying at home because of noise" (Silibaziso).*

Joylady said she studied *"when others are sleeping to avoid noise."*

The study also found that black female students do not get enough time to study while at home because they are expected to do domestic chores. This stereotype has been noted in several studies.

*"...I don't get much time to study because when you are at home you do house chores..." (Joylady).*

*"...I make my own time because I have a lot of roles. I am a mother, wife, as well as a Pastor, so it's too much for me but every time that I want to study, I make sure that I do all my chores then everyone is asleep I study..." (Dimpho).*

Regardless of the above hurdles, all participants indicated that they thrived to the final year in record time and without failing, owing to a variety of factors, including hard work in their studies [*"Studying hard..."* (Tebogo, Dimpho, and Samantha)], the use of technology for research [*"Watching YouTube videos to gain more information"* (Joylady)], and participation.

### **Participation**

It was interesting to find that participation is a remedy for the success of black female students at TVET colleges.

*"We interact with lecturers, we form the study groups and set a timetable for studying" (Eve).*

*"We work [study] in groups and listen to one another...We also ask teachers about things that we did not understand...I set a study timetable and participate in class so that I can pass my exams" (Evelyn).*

*"...always asking questions from friends" (Dimpho).*

*"...being attentive in class..., I ask questions from the lecturer if I don't understand..." (Gugulethu).*

*"If I don't participate I fail..." (Doreen).*

According to the study, black female students form study groups and ask their lecturers clarifying questions to succeed in their TVET programs. As stated in Section *De-motivators*, group work and seeking clarification from fellow students or teachers assist students in sharing knowledge and gaining understanding.

### **Theme 3: Benefits of studying at a TVET College**

This study also sought to determine whether it was advantageous for black females to study at TVET colleges. According to the study's findings, black female students benefit from their chosen TVET program in terms of both experience and career development.

#### **Experience and Career Development**

All participants indicated that they gained significant experience in their areas of study through the practical lessons that they did during their programs, allowing them to serve in the corporate world as well as start their businesses. Those involved in primary agriculture stated that they can now do *"piggery, chickens, ranching, and planting vegetables and flowers"* on their own. Participants studying civil engineering were also pessimistic about their ability to practice independently in their fields of study.

*"...I didn't know much about cars but now I can open the car engine and fix defects..." (Tebogo).*

*"...now I know how to fix licking pipes, umm I know to maintain machine and interpret drawing...now can fix my pipes at home I don't have to get someone to do it for me, even my husband when he is fixing something I'm always there..." (Dimpho).*

*"...I have gained a lot of skills, I can be able to do most of the carpentry stuff, ceiling, fixing doors, roofing...I now can start up my carpentry business..." (Gugulethu).*

*"I now know how to do a foundation when building a house" (Silibaziso).*

This sub-theme suggests that some black women gain experience with a desire to be entrepreneurs rather than employees. This is consistent with the findings in Section *Participation*, which show that black women are intrinsically motivated to empower themselves through professional development. The majority of the participants were so confident that they could start their businesses with the experience they gained in their programs. For instance, Gugulethu indicated that; "[...] *I now can start up my carpentry business...*" Likewise, Eve stated that; "[...] *from here I'm going to start my own business of being an agri-entrepreneur...*"

#### **Theme 4: Gender and race factors**

The primary goal of this study was to determine whether gender and race play a significant role in female students' participation in TVET colleges. This theme includes responses to the question of whether or not gender and race have an impact on the participation of black female TVET students. The theme's findings are presented in two categories: Gender and Race.

##### **Gender**

When asked if gender influences their participation in class as black female students, Eve stated that:

*"We are all treated equally, there is nothing that is for males or females in class, we all do the same thing."*

Similarly, Eve, Joylady, and Tebogo indicated that:

*"Participation is even, we are all equal and we understand each other." (Eve).*

*"[...] the way of participation is the same" (Joylady).*

*"We all participate the same, it's your choice whether or not to participate, it does not depend on whether you are a female or male" (Tebogo).*

In essence, it was found that female students outnumbered male students in some programs, typically primary agriculture and fitting programs. Surprisingly, these programs are associated with highly perceived masculine occupations. In agriculture, Eve mentioned that:

*"[...] in our class there are more females than males..."*

Joylady confirmed this by saying the following:

*"[...] we are more than male learners in our class..."*

In fitting, Dimpho indicated that:

*"The participation is more or less the same [...] there is only 1 male in our class."*

These findings indicate that the majority of black women are intrinsically motivated to combat gender stereotypes in masculine-perceived occupations and to empower themselves.

### **Race**

In terms of race, all participants stated that they were all black Africans in their programs, implying that race is not a factor in their participation and success.

*"We are all black, we understand each other, and we talk the same language" (Silibaziso).*

*"We understand each other since we are all blacks...we don't discriminate each other, we treat each other equally" (Evelyn).*

*"I never experienced a race issue...we all blacks [...] so we understand each other" (Tebogo).*

These findings indicate that TVET college students, regardless of gender, are predominantly black.

### **DISCUSSION**

The study's findings indicate that the involvement of black female students in TVET programs is positively impacted by one factor and negatively impacted by four factors. Interestingly, gender and race were found to have no effect on the participation of black female TVET students in their programs. Additionally, participation is contingent on support from various stakeholders, and the study revealed that black female TVET students appreciated the assistance they received from both the government and their families. The study also delved into the benefits that black female students derived from participating in TVET programs.

The study findings show that black female students can actively participate in a supportive learning environment with help from both lecturers and peers. According to Ngugi and Muthima (2017), this type of environment reduces fear and increases the confidence of black female students. However, using English as the medium of instruction and negative comments, stress, and exhaustion were found to have a negative impact on participation. This supports Nzembe's (2018) claim that the language of instruction in South African TVET colleges negatively affects black students' participation and success. Additionally, the study revealed that juggling student, mother, and wife roles was stressful for black female students, affecting their class participation. They also mostly studied at night after finishing household chores, leading to insufficient rest and impaired class participation. Matenda (2019) emphasized the traditional view of women being solely responsible for household chores as a factor hindering the participation and success of black female TVET students. Nevertheless, despite these challenges, black female students continued to work hard to succeed in their studies. Similarly, Ngugi and Muthima (2017) argued that, despite stereotypes and domestic roles, black women in traditional African society work hard to succeed in social and economic development, often outperforming their male counterparts. This finding aligns with the notion that African women play a critical role in their societies' socio-economic

development (see, for example, Adeyemi, 2004; Chopra & Muller, 2016; Cornwall, 2016; Duflo, 2012; Khada, 2014; Okorafor *et al.*, 2014).

In contrast to the findings of O'Brien *et al.* (2015), Cech (2015), Cornwall (2016), and Ngugi and Muthima (2017), this study demonstrates that gender no longer dictates the participation of black female students in TVET colleges. The study reveals that female students outnumber male students in certain programs, particularly in primary agriculture and fitting programs, which are traditionally associated with male-dominated occupations. This challenges the prevailing notion that STEM subjects are primarily male-dominated (see Ngugi & Muthima, 2017; UNESCO, 2020) and suggests that gender transformation initiatives are making meaningful strides. The study's findings indicate that the majority of black women are motivated to challenge gender stereotypes in occupations perceived as masculine and to empower themselves.

The participants in the study all identified as black Africans, indicating that their race did not affect their involvement in the programs. Nzembe (2019) notes that TVET colleges in South Africa were established to support previously disadvantaged groups, particularly black Africans who formed the majority. During apartheid, TVET colleges were intended for poor whites, blacks, and coloured urban workers, with the aim of imparting skills to rural residents to discourage migration to urban areas (Badroodien, 2004). Given this context, the study's findings are unsurprising. Overall, TVET colleges play a crucial role in skill development and empowerment, as evidenced by McGrath & Powell (2016), Okorafor *et al.* (2014), and UNESCO (2020).

In line with the literature (see, for example, Rubagiza, 2010; Kraak *et al.*, 2016; Matea, 2013; Barnes, 2004), an examination of the advantages that black students derive from their chosen TVET program indicates that skill development is the foremost benefit necessary for their career progression and pursuit of entrepreneurial aspirations. However, the primary challenge faced by students, irrespective of gender, is the inadequate learning infrastructure, particularly the ICT infrastructure at TVET colleges, which hinders their success. The National Committee on Further Education identified this issue in 1997, and regrettably, it remains unresolved. According to the Department of Education (DoE) (1997), the Committee found that the principal challenge impacting TVET colleges in South Africa is the lack of equipment and infrastructure, among other factors.

This study also revealed that both family members and the government play a supportive role in empowering black female students. Despite their low socio-economic status, all participants emphasized that funding for their education did not hinder their academic success, thanks to the assistance provided by the government through the National Student Financial Aid Scheme (NSFAS) and their family members. This finding aligns with DHET's (2020) assertion that TVET colleges receive a substantial portion of government funds compared to other tertiary institutions, with the aim of empowering financially disadvantaged students, the majority of whom are black Africans.

## CONCLUSION

The study aimed to understand why black female students had low participation in a TVET college in Southern KwaZulu-Natal. It focused on the capabilities, freedoms, and functionings context of black female students in terms of participation at TVET colleges, using a human development approach. The study found that gender is no longer a barrier to the participation of black female TVET students in science-related programs. It also found that black female TVET students were competitive with their male counterparts despite having to balance domestic chores and school work. The study concluded that black female TVET students are motivated to achieve their goals despite the constraints imposed by their socioeconomic status. The study made several policy recommendations, including encouraging TVET lecturers to engage professionally and friendly with their students, addressing English as a barrier to participation, improving ICT infrastructure and practical training equipment, prioritizing black female students in college residential accommodation allocation procedures, and providing capital, guidance, and support for black female students who want to be self-employed after completing their programs at TVET. Additionally, the study recommended collaboration with the private sector to provide internship and employment opportunities for black female students.

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