WOMEN'S LEADERSHIP IN TECHNICAL INSTITUTIONS IN TANZANIA: EXPLORING THEIR OPPORTUNITIES AND CHALLENGES

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ABSTRACT

In recent years, there has been a growing recognition of the importance of gender diversity and inclusion in leadership positions across various sectors. This paper investigates women's leadership in technical institutions in Tanzania with a focus on exploring their opportunities and challenges. The study participants included rectors, heads of departments, and tutors. Data were collected through focus group discussions and interviews. The results show the opportunities and challenges that women's leadership faced in technical institutions. These include; educational advancements, government initiatives, global awareness and advocacy, societal expectations and stereotypes, workplace culture and bias, balancing work and family responsibilities, and limited networking opportunities. Therefore, this study recommends that collaborative efforts between the government, and education stakeholders to have collective measures to fight against all vices that hinder women's leadership in technical institutions to allow them to bring contributions to the nation through their skills, knowledge and expertise.

Keywords: Women's leadership, technical institutions, opportunities, challenges, Tanzania.

INTRODUCTION

The historical background of women in educational leadership globally has gradually evolved from a predominantly male-dominated landscape to a more inclusive and diverse representation (Mascarenhas, 2017). Over the centuries, women have faced numerous challenges and barriers in their pursuit of leadership roles in education (Fagenson, 2019). Women began to break ground in educational leadership in the late 19th and early 20th centuries, particularly in the United States and Europe. Pioneering women educators, such as Ella Flagg Young, were among the first to assume leadership roles, challenging societal norms and advocating for women's rights in education (Sperandio, 2017). The mid-20th century saw an expansion of opportunities for women in education, as societal attitudes towards women's roles began to shift. Women increasingly entered administrative and leadership positions in schools and universities, although their numbers remained comparatively low (Qiang, Han & Niu, 2019).

UNESCO (2018) reports that the enactment of Title IX in the United States in 1972 prohibited gender-based discrimination in federally funded education programmes. This legislation significantly contributed to increased opportunities for women in educational leadership. Legal changes and affirmative action policies in various countries such as England, the US and Canada few to mention also played a role in opening up leadership positions for women (Mbepera, 2015). Hungi (2019) purports that women made notable strides in higher education leadership during the 1980s and 1990s. The appointment of women as university presidents and chancellors became

more common across the world. This period saw the emergence of prominent women leaders in academia.

In recent years, the global landscape of technology and education has witnessed a paradigm shift, with an increasing recognition of women's vital role in leadership positions, particularly in technical institutions. According to Makala (2023), exploring women's leadership in technical institutions stands at the crossroads of two crucial facets of contemporary society: gender equality and the rapidly evolving landscape of technology and education. Historically, technical fields have been predominantly male-dominated, reflecting broader societal norms and biases (Moorosi, 2017). However, as we progress into the 21st century, there is a growing awareness of the need to dismantle these gender barriers and harness the full spectrum of talent for advancing technology and innovation.

In a broader global movement towards gender inclusivity, there is a recognition of the untapped potential residing in the skills and perspectives of women (Omboko & Oyoo, 2019). In the context of technical institutions, encompassing engineering, computer science, and other STEM (Science, Technology, Engineering, and Mathematics) disciplines, the gender gap has been particularly pronounced. Historically, societal expectations, stereotypes, and systemic biases have hindered women from pursuing and thriving in these fields as leaders (Fuller, 2017). Nevertheless, recent years have witnessed a notable shift. Efforts to bridge the gender gap in technical education have gained momentum, with increased initiatives to encourage young girls and women to pursue STEM careers with the expectation of becoming leaders in technical institutions. Countries around the world are realizing that a diverse workforce fosters innovation, creativity, and a broader range of solutions to complex problems (Mbepera, 2015). This shift in mindset is gradually reflected in the composition of leadership within technical institutions, as more women ascend to influential roles.

Exploring the opportunities for women in leadership within technical institutions involves a nuanced examination of policy changes, mentorship programmes, and cultural shifts that have facilitated this transition. It also involves celebrating the achievements of women who have broken through barriers and paved the way for others (Mukolwe, Michael & Jack, 2018). However, challenges persist. Deep-seated stereotypes, unconscious biases, and institutional barriers continue to impede the progress of women in technical leadership roles. The underrepresentation of women in these positions not only limits their individual career growth but also hampers the overall potential for innovation and advancement within the technical fields (McNae & Reilly, 2018).

This background sets the stage for a comprehensive exploration of women's leadership in technical institutions, aiming to uncover the opportunities that have emerged and the challenges that still need to be addressed. Through a thorough analysis of this dynamic landscape, we can gain insights that contribute to fostering a more inclusive and equitable future for leadership in the rapidly evolving realm of technology and education.

LITERATURE REVIEW
In various contexts, numerous researchers agree that women are good leaders if given a chance to lead (McNae & Reilly, 2018; Fuller, 2017; UNESCO, 2018). According to Mbepera (2015), women are often considered good leaders in educational institutions for several reasons, and these qualities contribute to their effectiveness in guiding and shaping educational environments.

However, Qadir (2019) cautions that leadership qualities are not inherently gender-specific, but certain traits and approaches tend to align with the leadership styles exhibited by many women in educational settings.

According to Anchomese and Oyeniran (2018), women are often perceived as having strong interpersonal skills, empathy, and a collaborative approach. In technical institution settings, building strong relationships with students, staff, and parents is crucial, and women leaders may excel in creating inclusive and supportive environments. Moreover, Alexander (2018) maintains that since effective communication is key in educational leadership, some women are often recognized for their excellent verbal and written communication skills. Clear communication fosters a positive school culture, ensures transparency, and helps in resolving conflicts. In a similar vein, Qadir (2019) adds that women leaders often adopt a collaborative leadership style, emphasizing teamwork and collective decision-making. This shows that in educational institutions, where collaboration among educators is essential, this approach contributes to a more cohesive and supportive work environment.

The study by Fagenson (2019) in England reveals that women leaders are frequently associated with a commitment to inclusivity and diversity. They may be more attuned to addressing the needs of a diverse student body and promoting an inclusive curriculum that reflects various perspectives and experiences. In Russia, Gabdreeva and Khalfieva (2016) report that women leaders in technical institutions demonstrated strong problem-solving skills and resilience, qualities that were valuable in navigating the complexities of educational systems. The ability to adapt to challenges and find innovative solutions was crucial in leadership roles. The study in India by Mythili (2017) reveals that many women in leadership positions in education had a deep commitment to the overall well-being and academic success of students. This dedication has positively impacted educational outcomes and contributes to the development of well-rounded individuals. In Ghana, Akuffo (2016) shows that women leaders in technical institutions often emphasize emotional intelligence, understanding and managing their emotions and the emotions of others. This skill is particularly valuable in educational settings where creating a positive emotional climate is crucial for learning. In Tanzania, the study by Makala (2023) observes that women in leadership roles can serve as positive role models for both female and male students. Seeing women in leadership positions can challenge stereotypes and inspire students to pursue their goals, regardless of gender. In general, from the literature, it has been shown that women have historically been underrepresented in leadership positions within technical institutions, including engineering schools, computer science departments, and other STEM-related fields. Also, the literature pinpointed that the underrepresentation was often evident at various levels, from faculty positions to top administrative roles such as deans and department heads. Moreover, it has been shown that the representation of women in technical institutions' leadership roles varies significantly from one country to another. Some countries have made more progress in promoting gender diversity in STEM leadership, while others continue to face challenges. In Tanzania, little is known about the opportunities and challenges facing women's leadership in technical institutions. By understanding the nuanced dynamics of opportunities and challenges faced by women leaders, we can work towards fostering a more inclusive and equitable environment within Tanzania's technical institutions, ultimately enhancing the quality and impact of technical education in the country.

METHODOLOGY

The study investigated the opportunities and challenges facing women's leadership in technical institutions. The present study employed a qualitative research approach because it allows researchers to delve deeply into the complexities of a phenomenon, providing a rich and detailed understanding of the subject under investigation (Creswell & Creswell, 2018). It is particularly effective in exploring the intricacies of human behaviour, attitudes, and experiences which other research approaches cannot do. Moreover, qualitative research is well-suited for studying phenomena within their natural context. In this regard, the qualitative approach enables a researcher to capture the nuances and contextual factors that influence the subject of study, providing a holistic understanding of the issue under investigation. Furthermore, the qualitative research approach was vital in the present study because it recognizes the value of subjective perspectives and individual experiences (Alase, 2017). Thus, it allowed participants to express their views in their own words, contributing to a more nuanced and authentic portrayal of their experiences.

The qualitative approach in this study was adopted because it seems to be important in obtaining first-hand information on the opportunities and challenges facing women's leadership in technical institutions most of which seem to happen mainly qualitatively. The approach therefore seems to be most appropriate in comprehending issues deeply concerning issues regarding the opportunities and challenges facing women's leadership in technical institutions.

The present study adopted focus group discussions and interviews as methods of inquiry. Focus group discussion was adopted because it allows for the exploration of group dynamics and interactions (Cohen, Manion & Morrison, 2018). In this regard, participants' responses stimulated further discussion, leading to a richer understanding of shared perceptions and experiences. Moreover, focus groups are conducive to idea generation. In this regard, group interactions sparked new insights and creative ideas as participants built upon each other's thoughts, fostering a collaborative environment. Furthermore, in a focus group discussion, the researcher observed non-verbal cues, such as body language and facial expressions. These cues provided additional insights into participants' emotions and reactions. Lastly, participants in a focus group discussion provided immediate feedback to each other's responses, leading to a dynamic and interactive process (Leavy, 2014). This real-time interaction helped in refining and clarifying ideas. Focus group discussions were conducted with tutors.

On the other hand, semi-structured interviews were adopted in the present study because they provided an in-depth exploration of individual experiences, attitudes, and perceptions. In this regard, a researcher focused on the unique stories and perspectives of each participant without the influence of group dynamics. Moreover, interviews offered flexibility in terms of structure and content (Creswell & Creswell, 2018). In this regard researcher adapted the interview format based on the participants' responses, allowing for a more personalized and tailored approach. Furthermore, individual interviews allowed a researcher to focus on specific themes or topics of interest, ensuring a targeted exploration of the research questions without the influence of group dynamics (Omari, 2011). Interviews were conducted with the rectors and heads of departments. To not interfere with the institution's teaching timetable, the researcher requested the participants to conduct focus groups and interview sessions after class hours.

Data for the study were collected from Dar es Salaam and Arusha regions. The regions were purposively selected because they have a good number of government technical institutions hence being potential areas to collect data from. A total of four focus group discussions were conducted in four technical institutions. Each group consisted of four participants. Also, a total of four rectors and four heads of departments were interviewed. The information from the focus group discussions and interviews was audio recorded and later on transcribed verbatim.

Data Analysis Process
The data were analyzed using the thematic approach as proposed by Braun and Clarke (2013), whereby appropriate themes were identified, described and illustrated by the quotes from the participants. Earlier on, before commencing data collection, a research permit was obtained from the authorities. Thereafter, informed consent to conduct the study was also obtained from the respective technical institutions. Confidentiality of the information gathered and anonymity of the participants were ensured.

RESULTS
Seven themes emerged from the focus group discussions and interviews regarding the opportunities and challenges facing women's leadership in technical institutions. These are discussed below.

Educational Advancements
 The findings revealed that increased access to education for women has played a pivotal role in creating opportunities for leadership in technical institutions. As more women pursue higher education in science, technology, engineering, and mathematics (STEM) fields, the talent pool for a few potential women leaders. During the focus group discussions and interviews, it was reported that increased access to STEM education has equipped women with the necessary skills and expertise required for leadership roles in technical institutions. Participants were quoted as:

> Women's increased participation in STEM education challenges traditional gender stereotypes and biases that have historically hindered their advancement in technical careers. As more women excel in STEM fields, societal perceptions of women's capabilities in technical roles are changing, opening up leadership opportunities. Thus, as women knowledge pursue higher education, they gain specialized that valuable contributors position them in technical institutions as now not learners but leaders (Interview with HoD, Institution D).

In a similar vein, during a focus group discussion, participants said the following:
> Women who have pursued higher education in STEM fields are increasingly occupying leadership positions within technical institutions. This representation is crucial in creating role models and inspiring the next generation of women leaders in technical institutions (FGD with Participants, Institution A).

The quotations encapsulate a narrative of progress, challenging historical barriers, changing societal perceptions, and the emergence of women as leaders in technical institutions. It underscores the transformative power of education in challenging traditional norms and fostering an environment where women are not only learners but leaders in technical institutions. Moreover, it highlights the positive shift in the representation of women in leadership positions within technical institutions, stemming from their pursuit of higher education in STEM. It underscores

the importance of this representation in creating role models and inspiring future generations of women leaders in technical institutions.

Government Initiatives

The findings revealed that government policies and initiatives aimed at promoting gender equality in education and the workplace have contributed to creating an environment conducive to women's leadership in technical institutions. It was reported that affirmative action programmes and gender-sensitive policies were gradually dismantling barriers that once impeded women from reaching leadership positions. Participants disclosed that the National Gender Policy of the year 2000 for example, addresses gender imbalances and promotes gender equality across various sectors, including education. It emphasizes the importance of women's participation in decision-making processes, including leadership roles within educational institutions. During an interview one of the participants was quoted as:

> The country has a National Gender Policy of 2000 and a National Strategy for Gender Development of 2005. All these aim to promote gender equality and empower women in various aspects of Tanzanian society, including education. It recognizes the significance of women's participation in leadership and decision-making roles and outlines measures to address gender disparities (Interview with HoD, Institution C).

Similarly, another group of participants said the following:

> Affirmative action measures have been implemented to promote gender equality in education leadership. These initiatives include special recruitment drives, mentorship programmes, and capacity-building opportunities to encourage and support women in pursuing leadership roles in technical institutions in Tanzania (FGD with tutors, Institution A).

In a similar vein, one of the heads of the department added the following:

> The government supports capacity-building programmes aiming to develop women educators' skills and capabilities to prepare them for leadership roles. This includes training, workshops, and professional development opportunities (Interview with HoD, Institution D).

The quotations aforementioned above provide insights into the gender-related policies in Tanzania and their specific focus on promoting gender equality and empowering women, particularly in the context of technical education. The primary objective of these policies and programmes is to promote gender equality and empower women. This involves creating conditions that allow women to access opportunities, resources, and leadership positions on an equal basis with men. The emphasis on empowerment suggests a commitment to enhancing the agency and autonomy of women. Moreover, the quotations highlight the recognition of the significance of women's participation in leadership and decision-making roles. This acknowledgement is crucial as it challenges traditional norms and underscores the importance of women's perspectives and contributions in shaping policies and decisions.

Global Awareness and Advocacy

The findings showcased that international efforts and campaigns advocating for women's rights and gender equality have also influenced the discourse in Tanzania. The global emphasis on

empowering women in leadership roles has encouraged local institutions in Tanzania to adopt more inclusive practices, promoting diversity and equal opportunities. It was further reported that international campaigns and initiatives often raised awareness about women's rights and gender equality on a global scale. This increased awareness filters into Tanzanian society, contributing to a more informed and educated public discourse on gender-related issues. During the focus group discussions, participants said the following:

> Global initiatives, such as those led by the United Nations and other international organizations, often set norms and standards for gender equality. These global benchmarks provide a framework for evaluating and addressing gender disparities, influencing discussions on women's rights at the national level, including in Tanzania (FGD with tutors, Institution B).

Similarly, other participants added that:

> International efforts contribute to shaping global norms that influence national policies. Tanzania, like other countries, aligns its policies and strategies with international frameworks and commitments related to gender equality. This alignment reflects the influence of global discourse on the national agenda (FGD with tutors, Institution C).

During an interview, one of the participants said the following:

> Global campaigns often include capacity-building programmes that empower local organizations and individuals to address gender-related challenges. This capacity building contributes to the strengthening of civil society in Tanzania, fostering local initiatives and discourse around women's rights as a result, the community breaking the ceiling and believing women to take leadership positions in technical institutions (Interview with Rector, Institution A).

The quotations emphasize the positive impact of global campaigns, specifically capacity-building programmes, on empowering local organizations and individuals in Tanzania to address gender-related challenges. The voices acknowledge that global campaigns often incorporate capacity-building programmes. These initiatives aim to enhance the skills, knowledge, and capabilities of local organizations and individuals in Tanzania. Moreover, the quotations acknowledge that international efforts play a crucial role in shaping global norms. This suggests that campaigns, initiatives, and advocacy efforts on the international stage contribute to establishing shared norms and standards related to gender equality. Lastly, the quotations underscore the transformative impact of global campaigns, particularly through capacity-building programmes, on empowering local organizations and individuals in Tanzania to address gender-related challenges. The emphasis is on the strengthening of civil society, the fostering of local initiatives, and the positive change in community attitudes toward women taking leadership positions in technical institutions.

During the focus group discussions and interviews, participants reported challenges facing women in leadership as presented and analysed hereunder.

Societal Expectations and Stereotypes
The findings revealed that deep-seated societal norms and stereotypes surrounding gender roles persist, influencing perceptions of women in leadership. Preconceived notions about gender capabilities hindered the acceptance of women in traditionally male-dominated roles, creating barriers to their leadership aspirations. One of the participants was quoted as follows:

> Societal norms often dictate traditional gender roles, where women are expected to fulfil certain responsibilities and roles while men are assigned others. These roles can be deeply ingrained in cultural, historical, and religious contexts, contributing to fixed expectations regarding the appropriate roles for men and women (Interview with HoD, Institution B).

On a similar note, another group of participants added that:

> Stereotypes about leadership qualities, such as decisiveness, assertiveness, and authority, are often associated with masculine traits. When women exhibit these qualities, they may face backlash or be viewed as too aggressive, challenging traditional expectations of how women should behave in leadership positions (FGD with tutors, Institution C).

The quotation highlights the pervasive influence of societal norms on traditional gender roles, emphasizing the cultural, historical, and religious contexts that contribute to fixed expectations. Recognizing and challenging these ingrained norms is crucial for fostering more inclusive and equitable societal attitudes towards gender roles. Moreover, the quotations shed light on the challenges women face when exhibiting leadership qualities traditionally associated with masculinity. It underscores the importance of challenging and changing gender stereotypes to create more inclusive and equitable leadership environments.

Workplace Culture and Bias

The findings revealed technical institutions entrenched workplace cultures that inadvertently perpetuated gender bias. It was reported that unconscious biases, discrimination, and lack of mentorship opportunities hindered women's progression into leadership roles, creating a glass ceiling effect. Participants were quoted as:

> Unconscious biases are ingrained attitudes or stereotypes that individuals hold without being consciously aware of them. In the context of leadership, unconscious biases lead to preconceived notions about gender roles, associating leadership qualities more strongly with men. These biases influence appointment decisions, promotions, and performance evaluations, disadvantaging women in leadership advancement (Interview with HoD, Institution B).

Similarly, another participant said:

> Unconscious biases often lead to stereotyping of leadership roles, where certain characteristics associated with traditional male stereotypes are deemed more suitable for leadership. This results in women being overlooked for leadership positions or facing scepticism when they exhibit qualities that do not align with these stereotypes (Interview with Rector, Institution D).

The quotations effectively articulate the detrimental effects of unconscious biases on women's leadership advancement. It outlines how these biases shape preconceived notions, influence decision-making processes, and ultimately contribute to gender-based disadvantages in professional settings. The attribution to an interview with the head of the department adds a practical and institutional perspective to the analysis. Moreover, quotations effectively communicate how unconscious biases contribute to the stereotyping of leadership roles, creating gendered expectations that disadvantage women. The attribution to an interview with the rector

adds weight to the analysis, making it a valuable insight into the challenges faced in institutional contexts.

Balancing Work and Family Responsibilities

 The findings revealed that one of the challenges that women leaders often face is the challenge of balancing professional responsibilities with societal expectations related to family roles. It was reported that balancing work and family obligations impacted their ability to take on leadership roles that require extensive time and commitment. Participants were quoted as:

> Some women leaders in technical institutions face challenges if they lack sufficient support systems, both at home and in the workplace. A lack of affordable and high-quality childcare options, as well as a lack of support from partners or extended family, can hinder a woman's ability to commit to a demanding leadership role (Interview with Rector, Institution A).

Similarly, another participant said that:

> Balancing work and family obligations can lead to burnout and high levels of stress for women leaders. This can negatively impact their performance, well-being, and overall ability to sustain leadership roles that require significant time and commitment (Interview with HoD, Institution C).

The quotations highlight that women leaders in technical institutions encounter difficulties in managing their professional and personal responsibilities. The challenges are attributed to the absence of supportive structures, both within the family and the workplace. Moreover, the quotations highlight the potentially detrimental effects of balancing work and family obligations on women leaders in technical institutions, including burnout, stress, and negative impacts on performance and well-being. It emphasizes the importance of addressing these challenges to ensure the sustainable leadership of women in roles that require significant time and commitment.

Limited Networking Opportunities

The findings showcased that networking plays a crucial role in career advancement. It was reported that women leaders in technical institutions faced challenges in accessing the same networking opportunities as their male counterparts, impacting their visibility and chances of securing leadership positions. Participants showed the following testimonies:

> It is a matter of fact that existing professional networks within technical fields have been traditionally male-dominated. This creates an environment where women leaders feel excluded or face challenges breaking into established networks that are more accessible to their male counterparts (Interview with Rector, Institution B).

In the same vein, another participant said the following:

> Informal networking often plays a significant role in professional advancement. If technical institutions have informal networking cultures that involve predominantly male-oriented activities or settings, women leaders feel excluded or uncomfortable participating, hindering their access to valuable connections (Interview with Rector, Institution D).

The quotations highlight the historical male dominance in professional networks within technical fields and the resulting challenges faced by women leaders. It points to the need for recognizing and addressing systemic barriers to create more inclusive and equitable networking opportunities for women in technical leadership roles. Moreover, the quotations underscore the critical role of

informal networking in professional advancement and highlight the potential challenges faced by women leaders in technical institutions when these informal networks are characterized by male-oriented activities or settings. This recognition is essential for addressing gender disparities and fostering more inclusive networking cultures within these institutions.

DISCUSSION

This study found that women are underrepresented in educational leadership, especially in top managerial positions. The study revealed that although there were opportunities, women still faced some challenges to climb the ladder of leadership. One of the opportunities that women had, was educational advancements. It was revealed that women who pursued advanced education in technical fields brought about positive changes in organizational cultures. The findings are consistence with James (2019) who found that women's presence in technical institutions challenged existing norms and biases, fostering more inclusive and diverse environments that are conducive to women's leadership. Adams (2011) added that higher education often involves research and innovation, areas where women leaders can make significant contributions. By engaging in advanced research projects, women have the opportunity to become thought leaders and influencers in their respective technical institutions, enhancing their credibility as potential leaders. Johann (2015) reported that advanced educational institutions often offer professional development programmes that focus on leadership skills. These programmes provide women with the knowledge and tools needed to navigate leadership roles effectively, fostering their confidence and competence as leaders in technical institutions.

The findings also revealed that government initiatives were one of the opportunities that women had in technical institutions' leadership. The findings are in tandem with Gunder (2018) who found that government initiatives often focus on encouraging girls to pursue education in science, technology, engineering, and mathematics (STEM). By supporting STEM education at an early stage, governments create a pipeline for women to enter technical fields, laying the foundation for future leadership roles. In the same vein, David (2021) purported that government-sponsored scholarships and grants provide financial support to women pursuing higher education in technical disciplines. By reducing financial barriers, these initiatives make it more feasible for women to access advanced degrees and positions that can lead to leadership roles in technical institutions. Choge (2015) maintains that government initiatives provide a framework for addressing gender disparities and creating opportunities for women in leadership positions within technical institutions. These initiatives range from educational support to policy advocacy and contribute to building a more inclusive and diverse landscape in technical leadership.

The findings also found that global awareness and advocacy were the opportunities that women leaders got from international agencies. Global awareness and advocacy efforts significantly impacted women leaders in technical institutions in Tanzania by addressing gender disparities, promoting inclusivity, and fostering an environment conducive to women's advancement in leadership roles. The findings can be extrapolated to that of Gobaw (2017) who found that global awareness campaigns challenge traditional gender norms and stereotypes that limit women's access to leadership roles in technical fields. By promoting more inclusive and egalitarian values, these efforts contribute to changing societal attitudes and expectations. Noble (2014) added that awareness on a global scale attracts international support programmes and funding for initiatives that specifically empower women in technical leadership roles in Tanzania. This support includes

scholarships, mentorship programmes, and capacity-building opportunities. Gupton (2009) argued that global advocacy efforts influence policy changes at national and institutional levels. This includes advocating for gender-inclusive policies in appointment, promotion, and workplace practices, and creating an environment that supports the career advancement of women in technical institutions.

Regarding the challenges faced by women's leadership in technical institutions in Tanzania, the study found that societal expectations and stereotypes were one of the challenges facing women's leadership in technical institutions in Tanzania. The findings are similar to Thornton (2013) who found that cultural stereotypes about women's roles and behaviours clash with expectations associated with leadership positions. Women who defy these stereotypes by pursuing leadership roles in technical fields face resistance and scrutiny, affecting their professional experiences. Moreover, Shava, Tlou and Mpofu (2019) found that cultural stereotypes about women's roles and behaviours clash with expectations associated with leadership positions. Women who defy these stereotypes by pursuing leadership roles in technical institutions face resistance and scrutiny, affecting their professional experiences. Similarly, Smulyan (2015) found that stereotypes about women's competencies in technical fields persist, leading to a perception that women are less capable or knowledgeable in STEM (Science, Technology, Engineering, and Mathematics) areas. This bias undermines women's credibility as leaders in technical institutions. Chabaya et al. (2019) reiterated that societal expectations contribute to the lack of visibility of women in technical leadership roles. If women are not perceived as natural leaders in these fields, they may face challenges in gaining recognition for their expertise and accomplishments.

The findings also revealed that workplace culture and bias were challenges facing women leaders in technical institutions. The findings are similar to Kagoda and Sperandio (2019) who found that workplace culture and bias are significant challenges facing women leaders in technical institutions. The culture within these institutions shapes the experiences and opportunities available to women, while biases, whether explicit or implicit, influence decision-making processes. Mathika and Tsoka (2017) maintained that many technical institutions have historically been male-dominated, with cultures that were reflective of traditional gender norms. This creates an environment where women leaders feel like outsiders or face challenges in asserting their authority. Morillo (2017) added that biases often exist regarding the leadership style deemed suitable for women. Women in technical leadership roles encounter resistance if their leadership style does not align with traditional expectations, such as being assertive or authoritative. Mukolwe, 2018) reiterated that workplace culture can perpetuate gender-based microaggressions, which are subtle and often unintentional expressions of bias. Women leaders may face comments, attitudes, or actions that undermine their authority or competence based on their gender.

Moreover, the participants who participated in focus group discussions and interviews disclosed that balancing work and family responsibilities was a challenge facing women's leadership in technical institutions in the visited institutions. Anchomese and Oyeniran (2018) observed that the challenge of balancing work and family responsibilities was a common issue that women leaders faced, particularly in technical institutions. The dynamics of demanding technical roles, combined with societal expectations regarding caregiving responsibilities, created challenges for women in leadership positions. Choge (2015) maintained that leadership roles in technical institutions often require long working hours, involvement in critical decision-making processes, and sometimes,

extensive travel. Balancing these time-intensive responsibilities with family commitments can be challenging, especially when societal expectations place a heavier burden on women as primary caregivers. Mnisi (2018) added that the culture within technical institutions may prioritize a traditional work model that assumes a single, unencumbered focus on the job. This culture may not be supportive of work-life balance, making it difficult for women leaders to fulfil both professional and family roles without facing judgment or negative consequences. Makala (2023) argued that in some cases, women leaders may be hesitant to request part-time or flexible work arrangements due to the stigma associated with deviating from the traditional full-time model. Fear of being perceived as less committed to their roles may deter women from seeking arrangements that could help them manage family responsibilities. Suter (2017) observes that women leaders in technical institutions may be concerned about the potential impact on their career trajectory if they prioritize family responsibilities. Fear of being overlooked for promotions or key assignments may discourage women from fully embracing leadership roles.

Another challenge that was reported to face women's leadership in technical institutions in Tanzania was the limited networking opportunities. The findings tally with Mpebera (2025) who viewed networking as often providing access to mentors and role models who can offer guidance, support, and valuable insights. Women leaders benefit from having mentors who have navigated similar career paths. Limited networking opportunities may deprive them of these crucial mentorship relationships. Chin (2011) added that networking fosters knowledge-sharing and collaboration, which are essential for professional growth. Women leaders in technical institutions may miss out on opportunities to collaborate on research, projects, or initiatives if networking opportunities are scarce, limiting their professional development. In a similar vein, Mbepera (2015) observed that networking is closely tied to career advancement. Professional connections can play a role in accessing new job opportunities, promotions, and leadership roles. Women leaders with limited networks may face challenges in advancing their careers within technical institutions. Morillo (2017) argued that networks often serve as a source of information about job openings, funding opportunities, and professional development programmes. Limited networking can result in women leaders being less aware of and having reduced access to these resources and opportunities. Thus, addressing the issue of limited networking opportunities for women leaders in technical institutions requires intentional efforts to create inclusive networking environments. Initiatives such as mentorship programmes, networking events, and diversity and inclusion efforts can contribute to expanding networking opportunities and fostering a more equitable professional landscape.

CONCLUSION
Generally, while strides have been made in promoting women's leadership in technical institutions in Tanzania, significant challenges must be addressed to ensure sustained progress. Efforts to break down gender stereotypes, foster an inclusive workplace culture, and provide mentorship and networking opportunities are essential components of creating an environment where women can thrive as leaders in technical institutions. As Tanzania continues to embrace the principles of gender equality, the realization of women's leadership potential in technical institutions will contribute to the nation's overall development and competitiveness on the global stage.

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