

Navigating the challenges of female leadership in the information and communication technology and engineering sectors

Female
leadership in
ICT

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Abstract

Purpose – This paper addresses the issue of the underrepresentation of women in leadership positions within the information and communication technology (ICT) and engineering fields. The study examines the complex issue of vertical segregation and gender equality by exploring the barriers that women encounter and the potential coping strategies they adopt to advance in their careers.

Design/methodology/approach – The study employs a qualitative approach, conducting semi-structured interviews with 17 women at middle and upper management levels in the ICT and engineering sectors. This approach aims to better understand women's workplace experiences and gain deeper insights into the nature of the barriers they face.

Findings – The study identifies four main factors hindering women's progression toward senior management positions, namely working hours, work-family conflict, social role stereotypes and second-generation bias. The results also offer useful insights into the coping strategies adopted by women to overcome these barriers.

Practical implications – The study highlights the persisting underrepresentation of women in senior positions, indicating a societal and organizational lag in terms of inclusion and equity. It underscores the importance of developing effective policies to address the challenges faced by employees striving to balance their work and family commitments. Training is recognized as an important tool for raising awareness about gender stereotypes among employees and reducing second-generation bias.

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Originality/value – This study provides valuable lessons derived from its findings, including potential strategies that organizations can implement to help women navigate and overcome workplace barriers in the ICT and engineering fields.

Keywords Women, Gender equality, Barriers, Coping strategies, Leadership, ICT and engineering

Paper type Research paper

1. Introduction

Equality in employment remains an elusive goal in all societies, particularly in developing economies, despite being a fundamental human right (Kring and Kwar, 2009). Despite rapid changes impacting the global economy, advancement for women has been slow, with little progression to leadership positions and roles in organizations (Atewologun and Sealy, 2014; Silva *et al.*, 2023). Although attention has been drawn to gender equality for the past few decades, the gender gap still persists, even in developed countries such as the United States of America. For example, only 24 of the Fortune Global 500 Chief Executive Officers (CEOs) are women and merely 15% of leadership positions in the top 100 European companies are held by women (Steffens *et al.*, 2019). Despite some improvements, women still continue to experience stalled diversity in the workplace at all levels due to discriminatory organizational practices and lack of opportunities (ILO, 2016; Lundberg and Stearns, 2019; Silva *et al.*, 2023).

From a theoretical perspective, the purpose of this study is to gain insight into the complex issue of vertical segregation by examining the challenges women face and the coping strategies that help them advance to senior positions in the information and communication technology (ICT) and engineering sectors. The progress made by women continues to be of significance to policymakers, as fewer women are working in these fields (Al Marzouqi and Forster, 2011; Pappas *et al.*, 2016). While there is a substantial body of literature on gender inequality and women's leadership (Eagly and Karau, 2002; Griffiths *et al.*, 2019), there is limited scholarly work investigating gender equality in the ICT and engineering fields (Singh *et al.*, 2018), particularly in the African region and the context of small island developing states.

The contribution of this paper is to assess the challenges faced by women to better understand and consequently support gender equity practices. Although a large number of organizations have tried to address gender inequality by establishing strategies, policies and procedures, the reality may differ significantly from the set goals. Organizational policies must be customized from a contextual perspective. Moreover, the ICT and engineering sectors have significant impacts on the local economy and development, yet, there is hardly any evidence related to the comprehensive evaluation of barriers to gender inequalities across these two sectors in small island developing countries such as Mauritius. Hence, this paper attempts to fill the gap in response to limited context-specific studies to extend knowledge and broaden understanding of the challenges in the ICT and Engineering professions among women in leadership positions in a small developing island economy context and to understand how women can persevere in their professions.

The paper is structured as follows. First, major theories on women's progression in the workplace are reviewed. Second, the methodology used in the study is discussed. The findings are then presented and their wider implications are discussed. The paper concludes with strategies to overcome workplace barriers to female leadership in the ICT and engineering fields.

2. Literature review

The literature review offers an overview of women's employment in Mauritius, with a particular focus on the ICT and engineering fields. The barriers that contribute to women's

underrepresentation in leadership positions such as gender stereotypes (Koch *et al.*, 2015; Agrawal, 2016; Steffens *et al.*, 2019), family characteristics (Tlaiss and Kauser, 2010; Thurasamy *et al.*, 2011; Chen, 2016) and societal and institutional barriers (Smith *et al.*, 2012; Opoku and Williams, 2018) are then discussed.

2.1 Women in the ICT and engineering sectors in Mauritius

Mauritius, situated in the Indian Ocean, is a Small Island Developing State (SIDS) with a size of 1860 square kilometers and a population of 1,262,523, comprising 638,562 women and 623,961 men (Statistics Mauritius, 2022). The Mauritian labor force consists of 191,400 females and 293,000 males, with working women representing 39.5% of the labor force as of 2021. Existing statistics confirm that women are predominantly employed in the wholesale and retail trade sectors, followed by the manufacturing sectors (Statistics Mauritius, 2022). However, female representation in the ICT and engineering fields is notably low, with only 8,035 women employed (Statistics Mauritius, 2021a). The ICT sector is an important pillar of the Mauritian economy and the enactment of significant legislation tailored to the evolving ICT landscape has made Mauritius an attractive environment for major international ICT companies, fostering economic growth. However, women remain underrepresented in science-related fields such as engineering (2.1% female and 9.7% male) and information technology (IT) (4.4 and 13.9%, respectively) (Statistics Mauritius, 2021b). Despite legislative efforts to reduce gender inequality, women continue to face significant underrepresentation in leadership positions within these sectors.

2.2 Social role stereotypes

Gender roles in society often serve as cues for stereotypical thinking. The fields of ICT and engineering tend to be perceived as male domains, seemingly incompatible with the female identity as a social construct (Michie and Nelson, 2006; Agrawal, 2016). These stereotypes can result in bias, which represents inaccurate evaluations reflecting generalizations rather than an individual's true qualities (Koch *et al.*, 2015). Stereotypes are commonly defined as specific category-related characteristics often associated with a group of people due to accepted beliefs about the group's members (Agars, 2004; Welle and Heilman, 2007).

Eagly and Wood (2012) advocate that social role theory offers an explanation for the bias women encounter in leadership positions. Societal expectations about gender roles can create stereotypes and set standards for how men and women should behave in leadership roles. Gender role beliefs link women with qualities such as caring, warmth and cooperativeness, while male gender roles are associated with attributes like assertiveness, confidence, capability and decision-making (Steffens *et al.*, 2019). Moreover, adhering to gender role beliefs is socially rewarded as it aligns with role-congruent behavior, whereas role-incongruent behaviors are penalized (Mastari *et al.*, 2019). Other studies indicate that hostile sexism and benevolent sexism, grounded in traditional social gender stereotypes, play a key role in the reproduction of gender inequalities (Glick and Fiske, 1996; Barreto and Doyle, 2023).

2.3 Organisational environment and practices

Gender biases against female leaders continue to persist in the workplace, potentially hindering their career progression (Skaggs and Kecskes, 2022). Theoretical perspectives suggest that efforts to promote gender equity encounter obstacles not only in the form of social stereotypes but also due to organizational policies and practices, often characterized as second-generation gender bias (Opoku and Williams, 2018). Second-generation bias encompasses discriminatory practices inherited from first-generation gender bias. Second-generation bias is less apparent as a form of obvious prejudice (O'Neil *et al.*, 2015). However,

as Kolb and McGinn (2009) suggest, it tends to be more persistent as it becomes ingrained within cultural norms, resulting in inadvertent yet significant discrimination. Women may not be aware that they are victims of second-generation bias, as ongoing practices may not immediately seem harmful, since workplace conditions are applied to both genders in an organization. However, these practices discriminate against a gender because they reflect the masculine values of the male gender that shape the work settings (Trefault *et al.*, 2011). Gender roles shape the notion of the “ideal worker” as being a male figure (Tienari *et al.*, 2002), leading to discriminatory practices in recruitment and at various stages of the career ladder (Saifuddin *et al.*, 2019). This bias influences women’s participation and progress in these fields (Nelson *et al.*, 2006). For example, Latty and Burke (2021) find that female managers are more likely to be excluded from decision-making processes than their male counterparts. Consequently, over time, discriminatory attitudes and practices have remained unchallenged and have become deeply embedded in the organizational culture and structure, becoming the norm (Dunham, 2017; Skaggs and Kecskes, 2022).

Studies have shown that women in leadership positions in the field of engineering remain a minority in the workplace, making female engineers highly vulnerable to the damaging effects of stereotype threat, characterized by a fear of negative judgment (Steele *et al.*, 2002). However, recent studies have indicated that to overcome discriminatory organizational practices, both women and men need to advocate for greater female positions in the workplace and that organizations should reward efforts to promote inclusive goals (Franczak and Margolis, 2022).

2.4 Coping strategies

Coping strategies encompass the behavioral and psychological techniques individuals employ to manage stress (Biggs *et al.*, 2017). Lazarus and Folkman (1984, p. 141) define coping as “an individual’s cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person”. The literature indicates that women use different strategies to address the challenges they encounter at work, such as family-friendly policies and gender equity programs (Padavic *et al.*, 2020). Several studies have emphasized the importance of flexible working arrangements, provision of paid and unpaid leaves, childcare benefits, training and mentoring to assist women in balancing work and life responsibilities, all aimed at promoting successful career advancement (Bonney, 2005; Tlaiss and Kauser, 2010; Thurasamy *et al.*, 2011; Chen, 2016). These studies underscore the role played by supportive organizational policies and practices (Tlaiss and Kauser, 2010) and understanding supervisors (Thurasamy *et al.*, 2011) in facilitating women’s career progress. Furthermore, mentoring emerges as a critical role in enabling women to ascend to leadership roles. It not only contributes to their professional development but also builds confidence and equips them to address challenges effectively (Chen, 2016; Crisp and Alvarado-Young, 2018). McBride (2011) emphasizes that line managers should actively promote women’s participation and career pathways through workplace education and training. Training programs designed to address cultural barriers, enhance motivation and equip individuals with specific skill sets have proven essential in empowering women to excel in their job performance. These programs are instrumental in helping women acquire the necessary knowledge and skills, especially in the context of an evolving ICT landscape. Such initiatives not only enhance job performance but also support women’s career advancement (Smith *et al.*, 2006; Francis, 2017).

3. Methodology

The study employed a qualitative approach to research female leadership in the ICT and engineering sectors in Mauritius. Purposive sampling was used to better understand the

experiences of women in middle and upper management roles. Seventeen women willingly participated in the study and were interviewed using a semi-structured format. They were asked two main questions: (1) What are the barriers faced by women in advancing their careers in this sector? (2) What coping strategies can be used to overcome these barriers? The interviews were conducted at the interviewee's workplace, with some participants opting for telephone and online interviews due to busy schedules. Both English and French languages were used during the interviews, which lasted from 45 min to one hour.

After 17 interviews, data saturation was achieved, as no new information or themes emerged from the data collection. The interviews were recorded with participants' consent, transcribed verbatim and subjected to analysis. Data analysis started by reading the interview transcripts, guided by a theoretical perspective on gender equality. Thematic analysis was used to systematically examine the content of the transcripts. According to [Creswell and Clark \(2007\)](#), identifying themes and patterns in qualitative data analysis is crucial for understanding the phenomena under study. The process involved a close examination of words and phrases to better understand and explain women's experiences regarding career progression challenges and coping strategies to overcome the barriers. The themes drawn from the transcripts are discussed in the next section.

4. Results

4.1 Barriers

The findings identified only one female Managing Director and the rest of the sample consisted of supervisors and middle managers in the ICT and engineering sectors. There were four major issues preventing women in the ICT and engineering professions from reaching middle and upper management positions: (1) Working Hours, (2) Work-family Conflict, (3) Social Role Stereotypes and (4) Second-Generation Bias. The main coping strategies emerging from the study are thereafter discussed.

4.1.1 Working hours. Within this theme, participants explained how the structural characteristics of the industry influence their careers. The highly technical nature of ICT and engineering professions posed significant challenges for the women interviewed. Participants explained the demanding nature of the job due to its highly technical requirements:

Security breaches, crashed servers, or other IT problems can arise at any time. This means that you could be called upon to handle emergencies at any given moment, day or night. (Participant 12)

The work patterns in the ICT and engineering sectors differed from other disciplines due to long working hours. The requirement and willingness to work outside regular office hours were particularly challenging for the participants. Some expressed that their colleagues, especially male colleagues, expected them to stay in the office until the work was completed, even if it meant late evenings or working over weekends. Participant 15 noted, "*IT consumes much of your life, and maintaining a personal life is tough, yet my male colleagues don't seem to face this issue.*"

However, not all interviewees shared the same opinion. Participant 5 felt that she had the opportunity for flexible working arrangements without facing reprisal from her team:

Having good working locations with adequate transport links and facilities, along with time flexibility to achieve a satisfactory work-life balance, is important. It accommodates my personal situation, and several members of my team use flexi-time. (Participant 5)

Similarly, Participant 11 expressed that although the hours were long, the flexible working arrangement suited her and many other women's life circumstances.

4.1.2 Work-family conflict. Many participants highlighted the imbalance between work responsibilities and family life, which posed a significant challenge in their respective fields. They explained the social construct that influenced their progression to top management positions. Long working hours accentuated the difficulty of balancing work and family life, which was a significant disabling factor for mothers in the ICT and engineering sectors.

I have to work odd hours, which I can manage being single, but this can be quite challenging for working mothers. (Participant 13)

Some women found it challenging to effectively fulfill both work and family roles simultaneously due to conflicting demands and extended working hours. Participants also expressed concerns about exhaustion and their ability to perform effectively at work due to family commitments, which, for some, included caring for elderly parents. Moreover, women often felt obligated to shoulder family responsibilities and did not seek support from their partners in childcare, as many believed it was primarily women's role to care for their children, family and home.

Work-family conflict was exacerbated by the lack of supportive policies within their organization.

I don't believe the organization genuinely provides the right support or flexibility needed for women to attain senior management roles. They claim to, but there are no formal policies, so managers do not implement them. (Participant 3)

Although some organizations had policies in place to support flexible working arrangements, they were often not implemented by male managers. In several cases, managers preferred employees to be physically present at work. Interestingly, the interviewees expressed that female colleagues provided emotional, moral and professional support to their female counterparts who had traditional childcare responsibilities:

I have been helping my colleagues by covering for them in their duties. I think some of them struggle with work-family life conflict, as they do a lot of gatekeeping towards their husbands. I always tell them to let the dads take care of the children instead of trying to do everything themselves. (Participant 2)

It was evident that women were playing two demanding roles: one outside the home and one inside the home. These dual roles were especially challenging when young children were involved. For many participants, employment was crucial as it enabled them to financially cater for their children. Nevertheless, the incompatibility of these dual roles led to stress, leaving them feeling emotionally drained. Moreover, it was found that women tended to start families around their late twenties, a crucial time for promotion opportunities, which they sometimes declined due to the fear of additional responsibilities.

4.1.3 Social role stereotypes. The results confirmed that social role stereotypes are deeply ingrained in organizations, with a distinct bias toward showing more respect to male leaders in the ICT and engineering fields.

I know a few women in my workplace who have encountered difficulties while leading teams of male engineers. Some of the male engineers were not comfortable having a female manager. (Participant 16)

Moreover, participants pointed out that women managers often hesitate to impose their ideas. They tend to compromise more than their male counterparts, which sometimes leads to perceptions of them being unsatisfactory and unassertive decision-makers.

Sometimes it is advantageous, as we prioritize finding solutions over escalating arguments. However, colleagues, not just males but surprisingly some female colleagues, view this as a weakness in female leaders. (Participant 12)

Male characteristics appeared to hold greater value in the workplace, often recognized and acknowledged by individuals of both genders. One participant shared her experience of being a victim of harassment and constant belittlement by her male colleagues, which eventually led her to leave the organization. These women were made to feel, by both genders, that their male counterparts were more competent. As a minority in the workplace, women are highly vulnerable to stereotype threat and female leaders often face negative judgments from both men and women who hold stereotypical beliefs.

4.1.4 Second-generation bias. The presence of second-generation bias was evident in the management practices of the organizations. Notably, there was a lack of female role models, which are important for women to advance in their careers. Most participants believed that the absence of role models contributed to the lower number of women in leadership positions, making it challenging to envision women as leaders in male-dominated environments.

There are hardly any women in senior management, and this is important for women to look up to for inspiration and motivation. It helps them believe in themselves and their talents as women engineers. (Participant 17)

Participant 8 similarly noted the scarcity of *women in technological professions and the lack of highly visible female role models, akin to figures like Bill Gates and Steve Jobs, from whom women can derive inspiration and motivation so that they believe in themselves and their talent as women engineers.*

However, some participants did not allow this lack of role models to deter them. They were motivated to forge their career path despite the absence of female role models.

I tend to look up to both male and female business leaders. I know there aren't many female leaders in my workplace but it doesn't bother me. I know I'm good and I know I'll get there. (Participant 5)

The study also revealed that in the current organizational environment, men had better chances of being promoted to senior positions. This was partly because women, despite being equally or more competent, sometimes doubted their capabilities compared to men who exuded high confidence in their decisions, choices and skills. Men displayed self-confidence through their attitudes and communication skills, readily seizing leadership opportunities regardless of their competence levels.

When a higher-responsibility position is advertised, men often immediately say yes to the job, while women tend to deliberate on whether they are ready for it or if they will be able to manage it. There is an element of self-doubt in their decision-making that I have rarely seen in men. Women often engage in this self-doubt, and by the time they decide, the job opportunity has gone. (Participant 17)

The results revealed that women frequently downplayed their accomplishments and underestimated their skills and performance. They often believed that they were not ready for promotions, and participants expressed that women tended to strive for perfection not only in family responsibilities but also in their work. Consequently, they often undervalued and doubted their capabilities, even though they were equally deserving or even better than men, leading them to refrain from applying for promotions or, in some cases, even declining them. Moreover, organizations did not always grant promotions based on women's accomplishments. Instead, organizational policies and practices favored men with self-confidence and a proactive attitude toward seizing leadership opportunities.

4.2 Coping strategies

The study revealed that women in Mauritius employed several coping strategies in the ICT and engineering work environments namely (1) Self-Motivation and Upskilling, (2) Family Support and Time Management, (3) Mentoring and (4) Role Models and Visibility, which are explained in the next section.

4.2.1 Self-motivation and upskilling. Self-motivation and continuous upskilling emerged as crucial coping strategies to overcome daily barriers faced by women.

I've realized that I have to strive to get what I want and not let negative attitudes affect me. In IT, you also need to keep up with certifications and continuously learn new things. (Participant 15)

Participant 7 emphasized the importance of self-motivation in climbing the career ladder, encouraging herself to believe in her abilities, as *we should always say to ourselves that we can do it and never let it go*. Participant 14 stated that she motivated herself by enhancing her skills and dedicating *time to self-learning during weekends*. Participants also acknowledged the significance of attributes, like strength and patience, to show that women have a rightful place in this industry.

4.2.2 Family support and time management. Some participants expressed the importance of time management in coping with work demands. They also sought support from their family members and parents to help with childcare and household tasks while they were at work. For example, Participant 4 commented, *"I rely on my parents for support, and they look after my two kids during weekdays"*. Participant 8 also discussed the benefits of having her mother's support while meeting work demands.

Having my mum with us was a huge bonus and relief as she took care of our 2-year-old baby and home for the past year. I don't have to cook or clean; my mum takes care of everything.

Additionally, some participants shared their approach to time management to ensure they completed their work before leaving for home. For example, Participant 6 stated:

I go to the office at 7 a.m. to ensure everything is completed on time, I take shorter lunch breaks to avoid staying after 5 p.m. and to have more time with my family.

Almost all participants emphasized the importance of support and involvement from their family members as a crucial coping strategy. Additionally, some participants carefully managed their time to mitigate stereotype threats and the risk of being negatively judged while balancing their dual roles as professionals and as mothers.

4.2.3 Mentoring. The need for mentoring was identified as a coping strategy by the women in this study. However, only a few women interviewed had the opportunity to benefit from mentoring, which proved instrumental in helping them overcome feelings of isolation by interacting with experienced female colleagues.

I enjoyed reflecting on my work and sharing my experiences with a senior female staff member. The advice offered was invaluable and contributed to enhancing my skills and knowledge. (Participant 3)

In the current study, it was observed that women often took the initiative to establish mentor-mentee relationships, while it was not a common practice among male colleagues in the company. Many participants highlighted a desire for mentoring opportunities, particularly during the early stages of their careers. Mentoring could provide women in ICT and engineering with a valuable two-way learning network.

4.2.4 Role models and visibility. Most participants believed that the low representation of women in leadership positions was largely due to the absence of role models. For women pursuing careers in ICT and engineering, female role models played a vital role in inspiring, motivating and guiding them during their career development. These statements highlighted the participants' recognition of the significance of role models in both attracting women into technology and engineering careers and facilitating their advancement within their profession. The participants felt that the lack of visible role models made it difficult to envision women in leadership roles. Participant 12 noted that there *are hardly any women in senior management, making it hard to find relatable role models*. Similarly, Participant 14 expressed how *the lack of female role models in top positions diminished confidence among*

female engineers. Interestingly, Participant 17 highlighted their organization's proactive approach:

In my organization, we actively showcase women in leadership positions. When women see other women in top positions, they will be encouraged to join and stay with the organization, as they believe that they can reach those positions too . . . An engineering company with only males will struggle to attract and retain talented women . . . We need to put women at the forefront, by marketing their ideas and achievements as both professionals and individuals . . . both internally and externally, through networks and spotlights. Placing women at the forefront is essential to create visibility and attract other women. We started this approach in 2014 to create a network for celebrating women, and now we have nearly 40% of women in management levels and above.

The visibility of female leaders can help organizations expand their talent pool and thus reduce the underrepresentation of women in the field.

4.3 Discussion

This study has unveiled several challenges that hinder women from advancing into leadership positions in the ICT and Engineering sectors in Mauritius. Both social and structural practices have significant implications for women wishing to progress into leadership roles. The findings align with previous studies that have identified how long working hours and family obligations simultaneously affect women in leadership positions (Rafnsdóttir and Júlíusdóttir, 2018; Singh *et al.*, 2018). Adamo (2013) argues that these factors when combined with other challenges such as high levels of competitiveness, influence work-family conflict. Offering flexible working arrangements for childcare could support women in their career progression opportunities. This solution has also been widely accepted to mitigate work-family conflict (Galinsky *et al.*, 2010; Perlow and Kelly, 2014). However, in this study, many participants indicated that, while flexible working arrangements were supported in principle, they were often not effectively implemented. It was found that only a few organizations provided options such as part-time work or flexible working hours. Although several organizations had flexible working hour policies, male superiors frequently hesitated to put them into practice, reinforcing the prevalence of traditional working practices and a predominantly male-oriented leadership culture in ICT and engineering organizations, further perpetuating second-generation bias.

This study has shed light on fundamental issues concerning the stalled career advancement of women in the ICT and engineering sectors. First, the traditional societal perception of women as communal and caring still clashes with the image of a leader in the ICT and engineering fields. According to the gender role incongruity theory (Abraham, 2019), there is a mismatch between the role of women as leaders and the stereotypes associated with gender. Consequently, senior management often continues to perceive the ideal professional in the ICT and engineering sectors as a driving male figure. This perception extends to female engineers or senior managers, who may be seen as incongruent with professional technical careers and roles (Diekman *et al.*, 2010; Beasley and Fischer, 2012). These biases may become even more pronounced in the context of women's engineering, where qualities such as nurturing, warmth and caring seem to clash with the traditional masculine traits of the engineering culture (Diekman *et al.*, 2010).

The current study has revealed that men continue to receive more respect as decision-makers and exhibit greater confidence in their leadership roles. Consequently, women in senior management levels remain a minority in the workplace. This situation can further perpetuate social role stereotypes and make female engineers highly vulnerable to the detrimental effects of stereotype threats for several reasons. Firstly, women often find themselves working harder to prove their competence. Secondly, some women opt to forego family-friendly policies to project a more professional image in the workplace. Thirdly,

vertical segregation persists, as women are hesitant to apply for promotions due to the difficulty of balancing family responsibilities and the fear of being perceived as unprofessional if they do not maintain long working hours similar to their male counterparts. Fourthly, this study has also revealed instances of harassment stemming from stereotype threats. According to [Steffens et al. \(2019\)](#), stereotypes tend to be reinforced in the workplace when women represent less than 15% of leadership positions, leading to the phenomenon of being the “token” women. This status is highly visible to the predominantly male members, with women being associated with stereotypes that can result in experiences of sexism, isolation, performance pressure, harassment and work-family conflict ([Steffens et al., 2019](#)).

In this study, mentoring is perceived as an important factor in the career development of women in the ICT and engineering professions in Mauritius. In general, women with active mentorship are more likely to experience salary growth and secure promotions compared to those without mentors ([Carter and Silva, 2019](#)). Furthermore, in the current study, mentorship plays an important role as part of a broader framework to support women’s advancement and reduce the gender gap at senior levels. [Carter and Silva \(2019\)](#) suggest that having highly placed mentors results in women achieving promotions at the same rate as men. Mentors can guide competent women who may lack confidence, provide support during career development and help them maintain a work-life balance.

The findings of this study underscore the importance of female role models in attracting women to pursue careers in ICT and Engineering. Female role models serve as catalysts, inspiring women to enter these fields and advance in their professions. [Sealy and Singh \(2010\)](#) argue that one’s sense of what is possible is largely influenced by historical precedents. Many participants in this study believe in environments where senior leadership is predominantly male and women are less likely to be inspired. The absence of female role models contributes to the underrepresentation of women in leadership positions, as it becomes challenging to envision women as leaders in male-dominated settings. The literature also supports the significance of role models, even when women do not personally know them ([Sealy and Singh, 2010](#); [Salas-Lopez et al., 2011](#)). However, this study reveals that very few organizations support the contributions of female role models in advancing careers. Among the organizations that acknowledge this importance, they have a very strong supportive network and framework for women’s progress in the workplace. Moreover, one organization in the study regularly schedules “spotlight” talks and events featuring leading female figures. It encourages them to share their stories, creating greater visibility for women in upper management roles. This organization also has a supportive framework in place to help women reach senior management positions and has implemented strategies to reduce bias and promote diversity in the workplace.

Social role stereotypes may have inadvertently led women to adopt gender-conditioned behaviors that purposefully hinder their career opportunities and impede their advancement toward leadership positions. Scholars postulate that women’s perceptions of their suitability to work in IT and computing contribute to such stereotypical beliefs ([Singh et al., 2018](#)). In this study, some women indicate that they tend to undervalue themselves as leaders, even when they outperform their male counterparts. Consequently, they often decline promotion opportunities to higher levels, citing a confidence gap or imposter syndrome ([Butkus et al., 2018](#)). They feel undeserving of success, which hinders their upward career progression and negotiation for higher pay. Women also state that men tend to self-promote themselves, while their female counterparts show more respect towards male leaders. Thus, social role stereotypes ingrained in the organizational culture, perpetuated by both men and women, create more advancement opportunities for men, even when they may not have been as competent as their female counterparts.

5. Conclusion

Recent studies have shown that to promote gender equity, organizations in male-dominated professions are investing significant resources in hiring more women (Begeny *et al.*, 2020). However, despite these efforts, the problem of underrepresentation of women in leadership positions persists globally (Steffens *et al.*, 2019). The current study further supports these findings, mainly due to social role stereotypes and second-generation bias. Although the study was conducted in Mauritius, it was found that, to a large extent, the findings were similar to past studies conducted across the globe.

5.1 Practical implications

The findings of this study offer practical implications for the career growth of women in the ICT and engineering sectors. They show that women's persisting underrepresentation in senior positions reflects a serious drawback in terms of societal and organizational progress mainly regarding gender equity in the workplace. For many of the participants, achieving work-life balance is difficult due to responsibilities related to caring for young children, as well as stress, time and financial constraints. It is, therefore, important to develop effective policies that address the needs of employees who experience challenges in reconciling their commitment to their work and family. Padavic *et al.* (2020) suggest that family-friendly policies should also be adopted by men to reduce gender discrimination, as childcare responsibilities are not exclusive to women. It is thus recommended that the ICT and engineering sectors set up formal family-friendly policies and that the latter are properly implemented and equally adopted by men to avoid the stigmatization of women as being perceived as unprofessional while at the same time reinforcing men as the ideal work-devoted employee. It is recommended that organizations integrate work and family life not only by promoting flexible workplace policies but also by ensuring effective implementation of the policies to support the specific career needs of capable women to reach leadership positions.

Furthermore, organizations must view employees not solely as workers but as individuals with career aspirations and a fundamental desire for happiness and well-being. Consequently, fostering practices that facilitate personal growth through soft skills training and supportive networks is vital, allowing employees to be acknowledged for their contributions to workplace solutions. Tailored soft skills training should be designed to empower women professionally, thereby broadening their perspectives, ambitions and readiness for advancement into managerial positions. Training managers to comprehend the impact of social role stereotypes on both genders' cognitive processes is vital, particularly in empowering women to express their ideas confidently, prepare for promotions and assume additional responsibilities. Mentorship can also play a key role as part of a broader framework of personal growth and valuing diversity in the workplace. Mentoring appears to increase women's confidence in their abilities to create productive and equitable learning environments (Clutterbuck, 2001; Chen, 2016). To counteract gender stereotypes effectively, stronger leadership and organizational efforts are essential, ensuring that such stereotypes do not unfairly affect women. Role models and leaders, including male colleagues, should undergo training to set an example by exhibiting behaviors that respect and support all employees, addressing their needs comprehensively. Moreover, both male and female managers must actively advocate for women in leadership roles.

Research by Catalyst (2020) indicates that strengthening diversity with human resources practices and policies that focus on diversity can have numerous benefits such as reducing employee turnover, maximizing talent and productivity, reducing interpersonal aggression and discrimination and enhancing trust, employee engagement, innovation and decision-making. Women, with their distinct perspectives, contribute invaluable insights and novel viewpoints, enriching decision-making processes. To foster this diversity of thought, it is

crucial to create an inclusive space where women feel empowered to voice their ideas, especially in competitive workplaces often dominated by male voices. Therefore, teams and managers should foster an environment where women feel empowered to voice their ideas, especially considering that competitive workplaces often tend to be dominated by male voices, potentially discouraging female participation. Moreover, identifying talented women and providing them with the support required so that they are ready for promotional opportunities are crucial.

This study shows that discrimination and harassment are also present in the workplace and reported by a few individuals. It has been found that women may be prone to discrimination due to their “token” status, and it is thus important for organizations to have a framework where women can draw attention to such issues, which can be addressed by the organization. For such cases, the company should have a process that is independent of management so that the employee is protected, and this will prohibit retaliation from management. If an employee does not feel comfortable, she needs to voice out through a communication channel that is independent of the line of management, where she can do it in confidence. However, policies against discrimination might be more difficult to implement in small organizations, and this might result in the employees simply leaving the organization and seeking employment in a different field to avoid further problems.

5.2 Theoretical implications

From a theoretical perspective, the purpose of this study was to investigate the complex issue of vertical segregation by examining the challenges women encounter and the coping strategies that help them advance to senior positions in the ICT and Engineering sectors. While prior studies have mainly focused on female leadership in developed countries, such exploration is lacking in small island economies. The current study finds that social role theory, stereotype threat and second-generation bias remain persistent barriers to female leadership in small island developing states such as Mauritius. Social role theory serves as the foundational framework for comprehending gender dynamics in the ICT and engineering sectors, and the study confirms the persistence of gender-based social roles, leading to stereotypical distinction in the workplace. This study also indicates that Mauritian culture aligns with similar social role patterns between men and women, affecting vertical segregation, where men are associated with technology and action-oriented behaviors such as being good decision-makers. Men are also perceived to be assertive and confident in their roles to act as future leaders or CEOs. Women are found to reflect more communal and nurturing behaviors and often hesitate to assume leadership roles. Thus, the study shows the persistence of enduring stereotypes and second-generation bias, necessitating further efforts to bridge the gap.

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