

Does how we teach entrepreneurship matter? Pedagogical practices, entrepreneurial self-efficacy and the moderating role of gender among graduate entrepreneurs in Tanzania

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ABSTRACT

Entrepreneurial self-efficacy (ESE) is a key driver of graduate entrepreneurial success. However, university graduates in developing settings like Tanzania still report low confidence to start and run ventures, even after they complete entrepreneurship education (EE). The current study examined the contribution of entrepreneurship pedagogy, the “how” of teaching, on ESE development among Tanzanian graduate entrepreneurs. Also, the study contributes to the current literature on the role of gender as a moderator in the relationship between EE and ESE. A cross-sectional survey design through online structured questionnaires was employed, and data were collected from 228 graduate entrepreneurs majoring in entrepreneurship. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to determine the relationship between the study’s variables. The results indicate a positive and significant relationship between EE and ESE ($\beta = 0.279$, $t = 2.169$, $p = 0.015$). Also, the results revealed that gender and ESE are not significantly related, with females showing smaller effects than males (reference category) ($\beta = -0.176$, $t = 1.215$, $p = 0.112$). Further, it was found that there is no significant moderating effect of gender in the relationship between EE and ESE ($\beta = 0.076$, $t = 0.499$, $p < 0.309$). The findings confirm that experiential, role model-driven, and socially reinforcing pedagogical practices strengthen ESE among graduates, regardless of gender. Therefore, universities should adjust their entrepreneurship curricula to incorporate gender-responsive pedagogical practices, such as mentorship programs, experiential learning, and networking opportunities with successful local entrepreneurs from both genders. This will ensure equitable ESE development and better entrepreneurial performance among graduates.

Keywords: Entrepreneurship Education, Entrepreneurial Self-Efficacy, Gender, Graduate Entrepreneurs, Pedagogy

I. INTRODUCTION

The significance of Entrepreneurial Self-Efficacy (ESE) to university graduates is increasingly recognized as a critical driver of entrepreneurial success (Ndibalema et al., 2024b; Ramalho et al., 2022). ESE, defined as an individual’s belief in their capacity to successfully perform entrepreneurial tasks (Bandura, 1997), shapes motivation, persistence, and resilience in the face of complex business environments, regulatory hurdles, and resource constraints (Bandura, 1994; Hmieleski & Corbett, 2008; Yeh et al., 2021). High ESE enables graduates to establish ambitious goals, recover from setbacks, and consistently engage in entrepreneurial activities, ultimately influencing both the performance and sustainability of their ventures (Ndibalema et al., 2024b; Newman et al., 2019). However, despite the recognised importance of ESE, university graduates continue to report limited confidence in initiating and sustaining their business ventures especially in developing economies such as Tanzania (Mbunda & Kapinga, 2021). This highlights the need to identify factors that foster ESE in real-world entrepreneurial contexts.

University-based entrepreneurship education (EE) provides a structured environment for developing entrepreneurial competence and ESE through exposure to theory, practice, and mentoring (Amani et al., 2024; Ndibalema et al., 2024a). EE consists of three interrelated components: entrepreneurship content, which offers theoretical knowledge on concepts, strategies, and decision-making; entrepreneurship pedagogy, which focuses on the teaching and learning methods employed to connect theory with practice; and entrepreneurship development support, which encompasses mentoring, incubation, and networking (Alberti et al., 2004; Fulgence, 2015; Niyonkuru et al., 2005; Purwana & Widyastuti, 2017). Among these components, entrepreneurship pedagogy plays a central role in shaping Entrepreneurial Self-Efficacy (ESE) because it directly engages learners through experiential and practice-oriented methods such as simulations, case studies, role modeling, feedback, and collaborative projects (Fayolle & Gailly, 2015; Mbunda & Kapinga, 2021; Ojochide et al., 2024).

Entrepreneurship pedagogy emphasises the “how” of learning rather than only the “what,” it strengthens learners’ competencies, builds confidence, and enhances their belief in entrepreneurial capabilities (Ojochide et al., 2024). Social Learning Theory (SLT) provides a clear explanation for this process by positing that ESE develops through enactive mastery, vicarious learning, social persuasion, and emotional arousal regulation (Bandura, 1977a). In this regard, entrepreneurship pedagogy operationalizes these mechanisms by enabling students to learn through doing, observe successful entrepreneurial role models, receive feedback and encouragement, and gradually develop resilience in uncertain entrepreneurial contexts.

However, in addition to the mechanisms explained by Social Learning Theory, the effectiveness of these pedagogical practices in producing ESE outcomes is not uniform across all learners, as it may be shaped by the extent to which teaching and learning environments are inclusive and gender-sensitive (Li et al., 2020; Purnamasari, A. E., & Abadiyah, 2023). In this respect, pedagogical practices that are gender sensitive ensures that experiential learning processes, classroom participation, role modeling, and feedback mechanisms are designed and implemented in ways that equally support both male and female learners (Ngwoke et al., 2021; Ojochide et al., 2024). Therefore, the integration of gender is critical in ensuring that the benefits of entrepreneurship pedagogy are not only theoretically available but are equitably experienced, thereby influencing the extent to which ESE is developed across different groups of students. Building on this perspective, gender becomes a key explanatory factor in understanding variations in ESE outcomes derived from entrepreneurship pedagogy.

Drawing on Social Role Theory (SRT), gender norms and societal expectations shape individuals’ perceptions of entrepreneurial competence, often encouraging men toward risk-taking and autonomy while limiting women’s confidence and participation in entrepreneurial activities (Duong & Vu, 2023; Liñán et al., 2024; Shinnar et al., 2014). Consequently, this study positions gender as a moderating variable in the relationship between entrepreneurship pedagogy and ESE, with Social Role Theory providing the theoretical explanation for how gendered expectations influence the extent to which pedagogical experiences translate into entrepreneurial confidence (Li et al., 2020). In contexts such as Tanzania, where entrepreneurship is still shaped by gendered norms, this moderation effect is particularly important for informing more inclusive and effective entrepreneurship education practices (Santoso, J. D. (2020; Naz et al., 2022). Thus, integrating SLT and SRT enables assessment of whether entrepreneurship pedagogy benefits male and female graduates equally.

Additionally, existing research on the relationship between university entrepreneurship pedagogy and ESE often focuses on university students who intend to become entrepreneurs rather than graduates who have transitioned into business ownership, which may result into self-selection bias which may reduce the predictive power of EE (Bae et al., 2014; Elert et al., 2015). To address this gap, the present study examines graduates who majored in entrepreneurship related programs and currently operate SMEs, assessing the influence of entrepreneurship pedagogy on ESE in real-world contexts. Further, the study is set in Tanzania, a developing economy with resource constraints, limited access to entrepreneurial role models, and persistent gendered participation patterns (Kalimasi, 2018; Mbunda & Kapinga, 2021). These conditions make Tanzania a relevant setting for exploring how pedagogical practices function under structural limitations and whether gender moderates the effectiveness of entrepreneurship pedagogy. Ultimately, the findings inform strategies for inclusive and context-sensitive university entrepreneurship education in other developing economies facing similar challenges. Thus, this study examines the relationship between entrepreneurship education and entrepreneurial self-efficacy among graduate entrepreneurs in Tanzania while investigating the moderating role of gender.

1.1 Statement of the Problem

Despite the growing emphasize on entrepreneurship education in Tanzanian universities, many graduates still exhibit low ESE, which in turn makes it harder for them to establish and operate viable businesses. While the pedagogical practices in entrepreneurship education are designed to enhance ESE through experiential and practice-oriented learning approaches, its effectiveness appears to be inconsistent across learners. Existing evidence suggest that this lack of consistency could be tied to gendered differences in learning experiences, along with social expectations, but there has been limited empirical on how gender shapes the effectiveness of entrepreneurship pedagogy on ESE. Further much attention has been given to university students rather than practicing graduate entrepreneurs. As a result, we still lack solid evidence on how entrepreneurship pedagogy affects ESE for graduate SME owners, and also whether any such effect differs for women and men especially in Tanzania. This creates both a contextual and evidence gaps in understanding whether entrepreneurship pedagogy equally enhances ESE for male and female graduates in running of their business ventures. The current study aims to fill these gaps by studying how entrepreneurship pedagogy influences ESE among graduate SME owners in Tanzania, with gender as a moderator.

1.2 Research Objectives

- i. To assesses the influence of entrepreneurship pedagogy on entrepreneurial self-efficacy among graduate SMEs owners who majored in entrepreneurship in Tanzania.

- ii. To examine the moderating effect of gender in the relationship between entrepreneurship pedagogy and entrepreneurial self-efficacy among graduate SME owners who majored in entrepreneurship in Tanzania.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Social Learning Theory

According to Albert Bandura's Social Learning Theory (SLT), which first emerged in 1960, individuals develop knowledge, skills and behavior through interaction and observation in a given social environment (Bandura, 1977). The primary proposition of the theory is that, learning for competence development in a certain behavior occurs through interactions with other people in the social context (Amsari et al., 2024). Numerous studies related to students' learning have used this theory including entrepreneurship-related studies (Mbunda & Kapinga, 2021). This is because the theory serves as an explanatory framework on how the individual develops their entrepreneurial competencies and self-efficacy through exposure to role models, hands-on experience, and social influence (Newman et al., 2019).

Self-efficacy is a vital concept in SLT, which refers to an individual's belief in their own ability to plan and execute actions necessary to obtain desired outcomes (Kurfist, 2019). It influences motivation, emotional resilience, and behavior; in fact, self-efficacy often has an even greater impact on performance than other factors (Bandura, 1997). The concept has received further consideration in entrepreneurship research as entrepreneurial self-efficacy (ESE), which symbolizes the individual's judgment of his competence to start and successfully run an enterprise (Duong & Vu, 2023; McGee & Peterson, 2019). Previous studies indicate that individuals with higher level of ESE tend to take on entrepreneurial risks, persevere in the face of adversity, and sustain their commitment, making ESE an extremely important factor in entrepreneurial success (Wei et al., 2020). ESE is therefore an important aspect to understand in designing effective entrepreneurship education programs (Shinnar et al., 2014).

The formation of ESE in SLT is explained in terms of four key learning mechanisms: enactive mastery, vicarious learning, social persuasion, and the regulation of physiological states (Bandura, 1978). According to Mbunda and Kapinga, 2021, enactive mastery involves engagement in entrepreneurship activities directly, therefore allowing individuals to gain real-world experience and enhance their confidence in their own problem-solving abilities. Students develop their entrepreneurial skills and strengthen their beliefs in their own success through business simulations, case studies, and startup projects. Vicarious learning occurs by watching and modeling the behaviors of successful entrepreneurs. Exposure to role models gives students concrete examples of effective entrepreneurial strategies and strengthens the belief that they, too, can attain such success. Social persuasion, namely encouragement and constructive feedback from mentors, educators, and peers, further boosts confidence in one's entrepreneurial abilities. This positive reinforcement facilitates the overcoming of self-doubt and the cultivation of a growth mindset so vital for entrepreneurial success.

Finally, the regulation of physiological and emotional states plays a crucial role in shaping ESE. Keeping anxiety, stress, and other emotional states within certain limits in response to entrepreneurial challenges guarantees that fear of failure will not invade the individual and steal his or her confidence and performance. As a result, through these mechanisms, EE equips students with competencies and self-confidence required for entrepreneurial success. Through problem-solving exercises, mentorship, exposure to entrepreneurial role models, and experiential learning experiences, learners develop ESE. Further, these structured learning experiences enable students to develop their confidence and capability to face entrepreneurial challenges. Thus, the core role which EE plays in forming learner's entrepreneurial mindset is that it creates an environment in which they can actively practice and internalize entrepreneurial behaviors.

Despite the contributions of SLT, it has its limitations when applied in EE as it ignores the cultural differences and societal norms that determine the development of ESE. The theory puts too much emphasis on learning through observation and social influence, thereby tending to overlook how deeply ingrained cultural expectations especially those concerning gender roles can interfere with individuals' access to entrepreneurial experiences. In many societies, traditional gender norms and social constraints limits people especially women from fully engaging themselves in learning mechanisms that foster ESE, despite exposure to EE and role models. In SLT, these kinds of structural barriers are not taken into consideration; rather, the theory assumes that learning opportunities are equally accessed, and then also that responses to entrepreneurial education are thus uniformly shared. To bridge that gap, Social Role Theory (SRT) serves to fill this gap by explaining how society expectations shape individuals' behavior, beliefs and career choices including their level of self-efficacy and willingness to act upon entrepreneurship. By integrating SRT with SLT, it creates a more complete picture that acknowledges the role of learning experiences in developing entrepreneurial aspiration and self-efficacy alongside cultural and gender norms.

2.1.2 Social Role Theory

Social Role Theory (SRT) was developed by Alice Eagly in 1987. The theory's assumption is that gender differences arise due to societal expectations concerning the division of roles between men and women. The theory explains that gender differences arise out of the socialization of men and women into different roles at an early age. In this way, these roles are historically and culturally based and hence influence individual attitudes, behaviors, and self-perceptions through socialization. Traditional gender roles often associate men with leadership and risk-taking, while women are linked to caregiving and support roles (Selvam & Banu, 2021). Consequently, men and women cultivate different skills and aspirations regarding their career choices, thus, affecting them differently in accessing education, resources, and opportunities (Wu et al., 2022). Entrepreneurship tends to be associated with masculine traits such as risk taking, assertiveness, and competitiveness; thus, men are encouraged and rather viewed as being innately inclined for entrepreneurial pursuits (Pramod & Ramachandran, 2023). Conversely, women may face stereotypes linking them to supportive, nurturing, and risk-averse roles, which can undermine their confidence in their entrepreneurial competences and ESE.

Further, SRT explains why men and women may experience different levels of self-efficacy even when they receive the same EE. Women may internalize entrepreneurial knowledge differently due to pre-existing societal expectations, making them less likely to view themselves as successful entrepreneurs (Shinnar et al., 2014). Social norms influence the use entrepreneurial skills, therefore, since men tend to have stronger support from peers, mentors and family members, in that way, they develop self-efficacy (Koellinger et al., 2013). Women, conversely, often have their entrepreneurial endeavors questioned in a societal sense; this can be detrimental to their confidence, even when they have the requisite entrepreneurial skills and knowledge (Shinnar et al., 2014; Wu et al., 2022). Also, obligations such as caregiving and risk-averse expectations might hinder women's entrepreneurial pursuits (Bullough et al., 2022). The unavailability of successful female entrepreneur role models diminishes the opportunities for vicarious learning, while social persuasion tends to be less supporting for women than for men (Nowiński et al., 2019).

Thus, the integration of SRT into this undertaken study, strongly provides a justification for assessing the role of gender as a moderator in the relationship between EE and ESE. This is due to the fact that SRT provides a deeper understanding of why gender differences in ESE persist despite equal access to EE. The theory highlights the societal and structural barriers that shape how men and women internalize, apply, and benefit from EE. Thus, SRT strengthens the current study by offering a comprehensive theoretical foundation that explains how gender moderates the effectiveness of EE in fostering ESE among graduate SME owners.

2.2 Empirical Review

2.2.1 Entrepreneurship education and Entrepreneurial Self-efficacy

Entrepreneurship Education is a broad construct which comprises the entire process of imparting entrepreneurial competencies are such as knowledge, skills and attitudes (Cui et al., 2019; Jiatong et al., 2021; URT, 2013). These entrepreneurial competencies form the basis for ESE (Soomro & Shah, 2022). EE includes three key components: entrepreneurship content (what is taught), entrepreneurship pedagogy (how it is taught), and entrepreneurship development support (resources and mentorship provided to students)(Alberti et al., 2004; Niyonkuru et al., 2005; Purwana & Widyastuti, 2017). The current study focuses specifically on entrepreneurship pedagogy, the how of teaching, referring to the teaching and assessment methods/techniques used to impart entrepreneurial knowledge and skills (Lyu et al., 2024). This study emphasizes on how pedagogical activities, such as experiential learning, role modeling, and feedback, contribute to the development of entrepreneurial self-efficacy (ESE) among graduates. By examining the impact of Entrepreneurship pedagogy on graduates, the study aims to provide a deeper understanding of how teaching methods influence entrepreneurial competencies that enhance the development of ESE. Therefore, a successful EE course program must effectively integrate these entrepreneurial competences through its pedagogical practices in order to enhance ESE among university students.

Similarly, Social Learning Theory posits that individuals develop self-efficacy through four key mechanisms: enactive mastery, role modeling and vicarious learning, social persuasion, and physiological state judgments (Bandura, 1997). Each of these mechanisms can be explicitly tied to the entrepreneurship pedagogy, explaining how entrepreneurship education programs in universities contribute to ESE among university graduates (Ojochide et al., 2024). Specifically, entrepreneurship pedagogy not only imparts theoretical knowledge but also creates learning experiences aligned with the four mechanisms of Social Learning Theory (SLT): enactive mastery, role modeling and vicarious learning, social persuasion, and physiological state judgments(Mbunda & Kapinga, 2021). Entrepreneurship education enhances self-efficacy through soundly structured pedagogical approaches, which offer opportunities for experiential learning, exposure to role models in entrepreneurship, encouragement by instructors, and building psychological resilience (Ojochide et al., 2024).

For instance, enactive mastery is cultivated by incorporating business simulations, startup projects, internship opportunities, and other such learning modes that allow students to have hands-on experience in applying their knowledge in real-world contexts and build confidence through successful task completion (Mbunda & Kapinga,

2021). Such exposure helps students build confidence in their abilities and strengthening their ESE (Newman et al., 2019). Likewise, role modeling and vicarious learning are when teaching methods include learning activities where students are exposed to successful entrepreneurs via guest speakers, case studies, and mentoring opportunities (Mbunda & Kapinga, 2021). All such experiences allow students to see and learn the success and struggles of real entrepreneurs, thus boosting their belief in their own capabilities (Fayolle & Gailly, 2015). Therefore, it allows to learn real entrepreneurial experiences so that they can be encouraged in their belief that they can also be successful as entrepreneurs.

Further, social persuasion is another mechanism that can be used by instructors and peers to provide constructive feedback and encouragement and support during the learning and assessment process (Mbunda & Kapinga, 2021). Helping overcome self-doubt makes a stronger belief in one's ability to succeed as an entrepreneur (Bandura, 1997). Also, much of the motivation that persuades people to accept having entrepreneurship abilities comes from instructors (Kurfist, 2019). This type of positive reinforcement through constructive feedback, mentoring, and encouraging students in assessments of projects and business plan presentations can, therefore, improve students' ESE enormously (Bandura, 1978; Ouni & Boujelbene, 2023).

Finally, the very essence of entrepreneurship pedagogy is to create a physiological state judgment where opportunities exist, for students to make sense of developing psychological resilience (Mbunda & Kapinga, 2021). Teaching and learning activities that simulates a high-pressure entrepreneurial environment will help the students manage stress and retain concentration while interpreting physiological arousal as a state of readiness rather than anxiety (Ojochide et al., 2024). Additionally, putting students through real-world entrepreneurial situations, such as networking with entrepreneurs, attending industry workshops, and working on collaborative problem-solving activities help build their psychological resilience (Verduijn & Berglund, 2020). The experience would make students interpret physiological arousal as excitement and not fear which strengthens their confidence in making entrepreneurial decisions (Fayolle & Gailly, 2008; Silberman et al., 2023).

The collaboration of these four mechanisms, if integrated into appropriate pedagogical approaches, will enable the EE provided at the universities to systematically promote ESE (Ojochide et al., 2024). The alignment of SLT with entrepreneurship pedagogy not only promotes an enhancement of learning outcomes for the students but also cultivates the ability of students to put knowledge into practice by way of entrepreneurial activities (Mbunda & Kapinga, 2021). Based on this theoretical background, this study aims to postulate the relationship between entrepreneurship pedagogy and entrepreneurial self-efficacy (ESE) among graduate SME owners with an entrepreneurship major in Tanzania in the following manner:

Ho₁: Entrepreneurship pedagogy significantly influences entrepreneurial self-efficacy of graduate SME owners majored in entrepreneurship in Tanzania.

2.2.2 The moderating effect of gender

The concept of gender constitutes of the responsibilities, actions, duties and roles that are assigned to men and women in the society. Globally, the expectations and roles of men and women in entrepreneurial activities differ (Dempsey & Jennings, 2014; Duong & Vu, 2023; Petridou et al., 2009; Purnamasari & Abadiyah, 2023; Singh, 2020). This is because, male and female often act in dissimilar ways according to the socio-cultural conditions which causes each gender to develop distinct socialization pathways (Sarfaraz et al., 2014). Social Role Theory explains that these gendered expectations influence how individuals perceive and internalize entrepreneurial competencies. Also, societal norms classify certain behaviors such as risk-taking, independence, and assertiveness as more masculine therefore appropriate for men while women are often socialized toward caregiving, cooperation, and risk aversion (Li et al., 2020). Thus, entrepreneurship traits, such as being autonomous and risk averse, are perceived to be more male-oriented, resulting in gender-based variance in ESE (Naz et al., 2022; Santoso, 2020).

Additionally, in many societies including Tanzania, the level of support and encouragement received in entrepreneurial pursuits mostly depends on gender (Tundui, 2012). Men are often reinforced in their ambitions regarding entrepreneurship while no such encouragements are administered to women. In these societies, women encounter societal barriers affecting the overall confidence in entrepreneurial pursuits (Naz et al., 2022). Social role theory explains how such differences have arisen from longstanding cultural beliefs surrounding the categorization of some activities as masculine or feminine (Liñán et al., 2024). The quality traits such as risk taking, assertiveness, and independence, often associated with masculinity, frequently accompany entrepreneurship (Lyu et al., 2023). This internalization may make some women be convinced that they are not good enough to do entrepreneurship as men, thus affecting their ESE development (Li et al., 2020).

Moreover, SRT posits that, these socially constructed gender roles influence not only individual behaviors and social expectations, but also access to entrepreneurial opportunities. In cultures where entrepreneurship is seen as a male-dominated field, women are believed to lack exposure to female role models, mentorship and entrepreneurial networks which are important in developing ESE (Shinnar et al., 2014). In addition, women are susceptible to greater

fear of failure and scrutiny from their society, thus inhibiting them further in undertaking business ventures (Santoso, 2020). Based on that theoretical perspective, entrepreneurship pedagogy can provide a structured learning environment that challenge restrictive gender norms by supplying entrepreneurial knowledge, practical experiences, and also supportive role models to female. On the other hand, males are socially conditioned to display characteristics associated with undertaking business ventures and would not, therefore, see as much increase in ESE through entrepreneurship pedagogy as females, who benefit from the structured learning environment that counteracts such restrictive gender norms. Consequently, Social Role Theory provides a basis for hypothesizing that:

H₀₂: Gender moderates the relationship between entrepreneurship pedagogy and entrepreneurial self-efficacy among graduate SME owners who majored in entrepreneurship in Tanzania.

III. METHODOLOGY

3.1 Study area and research design

The study's target population comprised of graduate SME owners situated across various regions in Tanzania. This research was carried out in multiple regions that accommodate SMEs owned by graduates who had completed a bachelor degree in entrepreneurship related courses, from the University of Dodoma, Mzumbe University, Moshi Cooperative University, and Iringa University in Tanzania. The aforementioned universities were specifically chosen from among Tanzania's many universities: they have been providing a bachelor's degree in entrepreneurship for more than ten years. Additionally, these universities provide entrepreneurship development support services, which encompass incubation centers, student entrepreneurship clubs, entrepreneurial project initiatives, as well as conferences, seminars, and workshops centered on entrepreneurship.

Further, given that the primary aim of the present study was to test hypotheses, a quantitative research approach was subsequently employed. Additionally, since data collection occurred only once, the study utilized a cross-sectional survey research design (Setia, 2016). According to Saunders et al. (2019), this design is considered efficient and cost-effective due to its capacity to facilitate the rapid collection of a substantial volume of data. Furthermore, this approach is appropriate as the objective of the research is not to observe changes over time, but rather to ascertain the current state of the variables being examined (Kiyabo & Isaga, 2020).

3.2 Sampling and data collection

The demographic of interest for this study consisted of graduate SME owners in mainland Tanzania who specialized in entrepreneurship. Focusing on these graduates stems from their entrepreneurial competences developed from the EE degree programs completed at universities (Kyari, 2020; Mwasalwiba et al., 2012). Furthermore, graduate SME owners possess and run their own enterprises, thereby rendering them exceptionally well-equipped to furnish insights regarding the influence of EE on the ESE. Given the inadequate upkeep of SME databases, particularly concerning the personal details of their owners (Ismail, 2022), coupled with the significant prevalence of unregistered SMEs, especially within developing nations such as Tanzania (Isaga, 2018; Tundui, 2012), the sample frame for this investigation remains indeterminate. In light of this circumstance, the researcher acquired contact information of prospective graduate SME owners from the institutions from which they graduated, subsequently utilizing a snowball sampling technique to identify additional eligible participants. Given the absence of a comprehensive official registry of graduate SME owners in Tanzania, snowball sampling was considered appropriate.

Furthermore, due to the indeterminate nature of the study's population, the infinite population formula ($n = \frac{z^2pq}{d^2}$), based on principles from probability theory and statistics (Garren & Cleathero, 2024) was employed to ascertain the appropriate sample size for the research. In this equation, n represents the sample size, z denotes the standard deviation, which is 1.96 at a 95% confidence level, p signifies the proportion of the maximum population estimated at 50%, q is defined as $1 - p$, and d indicates the desired margin of error set at 0.05. Consequently, the calculation yields $n = \frac{(1.96)^2 \times (0.5 \times 0.5)}{(0.05)^2} = 384$.

For gathering data from graduate SME owners who majored in entrepreneurship on how the EE they acquired developed ESE, survey method through online structured questionnaires were used. This method seemed suitable for the study as it provided a more cost-efficient and speedy way to gather data over traditional face-to-face survey method (Singh & Sagar, 2021). The data collection process through online questionnaires took place from August 2023 to December 2023. Prior to its official administration, the online questionnaire was pretested and refined in response to the gathered feedback. Written informed consent was obtained electronically from all participants before they were granted access to the questionnaire. Specifically, participants were first presented with a participant information statement and were required to indicate their informed consent, with an emphasis on voluntary participation. After that, the respondents were sent a link to a Google Form that contained a questionnaire and brief instructions as well as concise instructions, in every section prior to commencement of that section.

Also, the form had the same rating scale throughout the sections, prepared in simple English to reduce misunderstanding. Ensuring anonymity, no personal identifiers like names, or email addresses were required, and the privacy policy made it clear that participation was entirely voluntary. It was acknowledging that, there are certain limitations associated with the use of online surveys, such as the potential for self-selection bias arising from the dissemination of a survey link (Andrade, 2020). In order to address this issue, the researcher engaged in direct communication with each participant, provided them with the survey link along with explicit directives to refrain from sharing the link with any third parties. Out of 384 sent questionnaires, 260 were returned, 32 incomplete questionnaires were eliminated and 228 complete questionnaires remained, yielding an effective rate of 59.4% as it was higher than the 44% target (Wu et al., 2022). Out of the total number of completed questionnaires, male graduate SME owners completed 162 questionnaires (71.1%), and female graduate SME owners completed 66 questionnaires (28.9%). Bandura's Social Learning Theory and existing empirical literature by various authors guided the questionnaire's design (Caliendo et al., 2023; Chidi & Fatoki, 2021; Miao et al., 2017; Ngeek, 2015; Shen et al., 2021; Srimulyani & Hermanto, 2022).

3.3 Measurement of variables

The scales of measurement employed in the study were modified from the body of previous research and have been verified and used before. All the measures used a five-point Likert scale ranging from “1- no confidence to 5- complete confidence”. Specifically, entrepreneurship pedagogy was measured using indicators adapted from Rengiah (2013) and ESE was measured using indicators adapted from (Zhao et al., 2005). Graduate SME owners were asked to rate their level of acceptance on the effectiveness of the teaching methods used in entrepreneurship course programme. Also, graduate SME owners were requested to rate the level of their confidence in conducting entrepreneurial tasks as a result of the EE acquired at the universities.

3.4 Data analysis

Using Smart PLS version 4 software, PLS-SEM (Partial Least Squares Structural Equation Modeling) was employed in the study. PLS-SEM is appropriate for establishing the measurements of the model in a study to ensure validity and reliability. It is also used for analyzing the structural model to establish relationships between constructs, utilizing both latent and observed variables. (Hair et al., 2021). PLS-SEM successfully manages models with several indicators and constructs, therefore was an appropriate analytical choice. Also PLS-SEM is an essential variant of SEM that remains robust even with limited sample sizes, demonstrating a high level of accuracy in foreseeing the relationships among specified variables. (Hair et al., 2019). It was therefore used to explain causal-effect correlations between entrepreneurship pedagogy; ESE of graduate entrepreneurs specialized in entrepreneurship. And the moderating role of gender in this relationship. There are two steps in the data analysis process: assessing the validity and reliability of the measurement model. In the second step, the relationships in the structural model were evaluated, and the proposed hypotheses were put to the test. Before establishing conclusions for the relationships in the study, checks for endogeneity and normality were carried out to guarantee robustness.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Common Method Variance

Self-administered questionnaires were used in the research methodology to collect data from graduate SME owners, which might have unintentionally injected bias into the findings. An anonymized format was used to present the data in order to mask participant identities and reduce the possibility of bias. In addition, the main goal of the study was clearly stated in the questionnaire to improve clarity and reduce any possible biases. In order to assess whether a major common method bias problem existed, the study also used the Harman single-factor technique. According to the findings of the Harman single-factor analysis for common method bias, one component of the model could account for about 39.87% of the variance; however, since this percentage is less than the crucial 50% threshold, there are no valid reasons to be concerned about bias (Podsakoff et al., 2003). However, the researcher acknowledged the inherent drawbacks of the Harman single-factor technique, noting that it is not deemed robust enough when used alone because it assumes that method bias results from a single factor, whereas in practice, method bias may come from a variety of sources (Aguirre-Urreta & Hu, 2019). Further, the researcher took additional measures to reduce social desirability bias and other forms of prejudice in order to overcome the drawbacks. For instance, anonymity and confidentiality of the respondents were assured. Meanwhile, collinearity was assessed using a variance inflation factor (VIF) with results in a range between 1.282 and 2.001 indicating that these variables were not significantly correlated due to their values being below the crucial threshold of 3.3. The results of the Harman single-factor test and VIF assessments were thus identified as potential sources of common method bias that could potentially affect the data; however, no significant impacts were really detected (Kock, 2015; Podsakoff et al., 2003).

4.1.2 Measurement Model Results

The validity and reliability of the measurements are demonstrated in Table 1. The reliability level is considered adequate once the Cronbach's alpha values for EE and ESE are 0.839 and 0.81, respectively, over the 0.7 criterion (Hamid et al., 2017). All variables had composite reliability (CR) values greater than 0.7, notably 0.903 for EE and 0.876 for ESE, indicating that reliability was not a problem. Furthermore, reliability was confirmed when the outer factor loadings were greater than 0.708 (Ringle et al., 2023). On the other hand, convergent validity was established when the average variance extracted (AVE) values for both EE and ESE exceeded 0.5 (Hair et al., 2019; Ringle et al., 2023). Table 2 lists the three criteria that were used to evaluate discriminant validity. The results indicate that discriminant validity was effectively attained for all criteria because the values in the Heterotrait-Monotrait (HTMT) matrix fell below the 0.85 criterion. Furthermore, greater than the correlations between the constructs and other constructs was the square root of the Average Variance Extracted (AVE) values. As shown by the cross-loadings (highlighted) in Table 3, the cross loadings within each construct were ultimately found to be larger than those in any alternative construct (Hair et al., 2019; Ringle et al., 2023). To sum up, the findings in Tables 1, 2, and 3 support the measurement model that supports the reliability and validity of the measures; as a result, the study moved on to assess the structural model in order to look into the hypothesized relationships. The results of the VIF and Harman single-factor analysis tests showed that common method bias had no noticeable effect on the study's relevant data (Kock, 2015; Podsakoff et al., 2003).

Table 1

Measurements, Reliability and Validity

Items/constructs	EE_PED	ESE
ESE1	0.281	0.854
ESE2	0.257	0.797
ESE3	0.238	0.755
ESE4	0.254	0.787
EE_PED1	0.866	0.295
EE_PED2	0.862	0.268
EE_PED2	0.88	0.279

Table 2

Discriminant Validity

Constructs/Items	Outer loadings
Entrepreneurship pedagogy ($\alpha=0.839$, $CR = 0.903$, $AVE = 0.756$)	
The teaching methods used made the entrepreneurship course relevant to the real world (EE_PED1)	0.866
The teaching methods used involved taking students for visits to entrepreneurs to gain more knowledge on the subject (EE_PED 2)	0.862
The teaching methods used involved stories of great entrepreneurs to motivate the students for business ventures (EE_PED 3)	0.88
Entrepreneurial self-efficacy ($\alpha=0.81$, $CR = 0.876$, $AVE = 0.638$)	
I am confident in successfully identifying new business opportunities (ESE1)	0.854
I am confident in creating new products (ESE2)	0.797
I am confident in thinking creatively (ESE3)	0.755
I am confident in commercializing an idea or new development (ESE4)	0.787

Table 3

Cross loadings

HTMT Matrix	EE_PED	ESE
EE_PED		
ESE	0.391	
Fornell-Larcker criterion	EE_PED	ESE
EE_PED	0.869	
ESE	0.323	0.799

4.2 Structural Model and Hypothesis Testing

The current study examined the structural model by assessing the role of EE as a main predictor variable, gender as a moderating variable and ESE as the outcome variable (see Figure 2). According to the study, there were no major collinearity problems with our data set because the variance inflation factor (VIF) of the inner model was less than 3.3 (Hair et al., 2019). Furthermore, the structural model's coefficient of determination (R square), as shown in Figure 1, was 0.113. This suggests that the model's predictors account for around 11.3% of the variance in ESE. They also used the Q square value to assess the structural model's predictive relevance, and the value was 0.06. With a number more than zero, this confirms the structural model's predictive relevance (Hair et al., 2020).

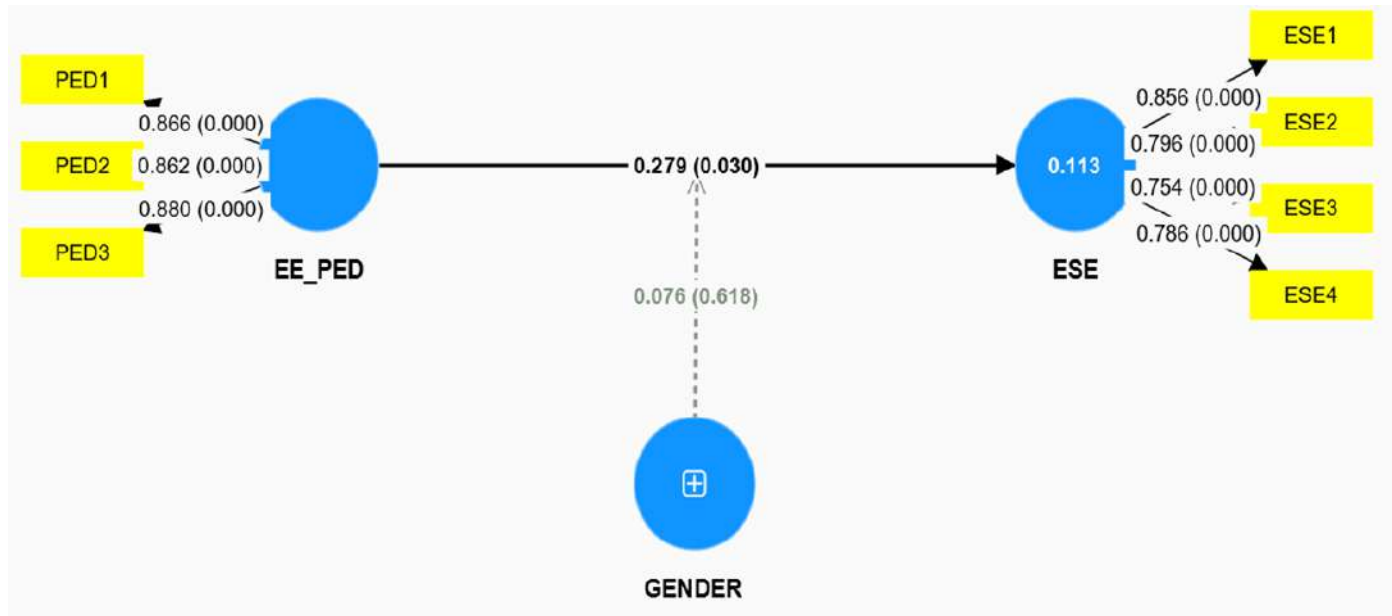


Figure 1
The Structural Model

The path coefficient (b) and associated p-value were examined by the researchers in order to test H1 on the relationship between EE and ESE (see Figure 2). The results, as presented in Table 4, demonstrate a positive and significant relationship between EE and ESE ($\beta = 0.279$, $t = 2.169$, $p = 0.015$). Therefore, H1 is supported. Regarding H2, the findings in Table 4 show that gender and ESE are not significantly related, with female showing smaller effects than male (reference category) ($\beta = -0.176$, $t = 1.215$, $p = 0.112$). Also, the study tested the moderating effect of gender on the relationship between EE and ESE. The findings in Table 4 show that there is no significant moderating effect of gender in the relationship between EE and ESE ($\beta = 0.076$, $t = 0.499$, $p = 0.309$). Therefore, H2 is not supported. Further, the moderating effect of gender on the relationship between entrepreneurship pedagogy and entrepreneurial self-efficacy is illustrated through a plot analysis as shown in Figure 3 below.

Table 4
Structural Model for Testing Relationships

Relationships	Original sample (O)	Standard deviation (STDEV)	T statistics (O/STDEV)	Confidence intervals		P values
EE_PED->ESE	0.279	0.129	2.169	0.070	0.487	0.015
GENDER->ESE	-0.176	0.145	1.215	-0.409	0.066	0.112
GENDER*EE_PED->ESE	0.076	0.152	0.499	-0.164	0.335	0.309

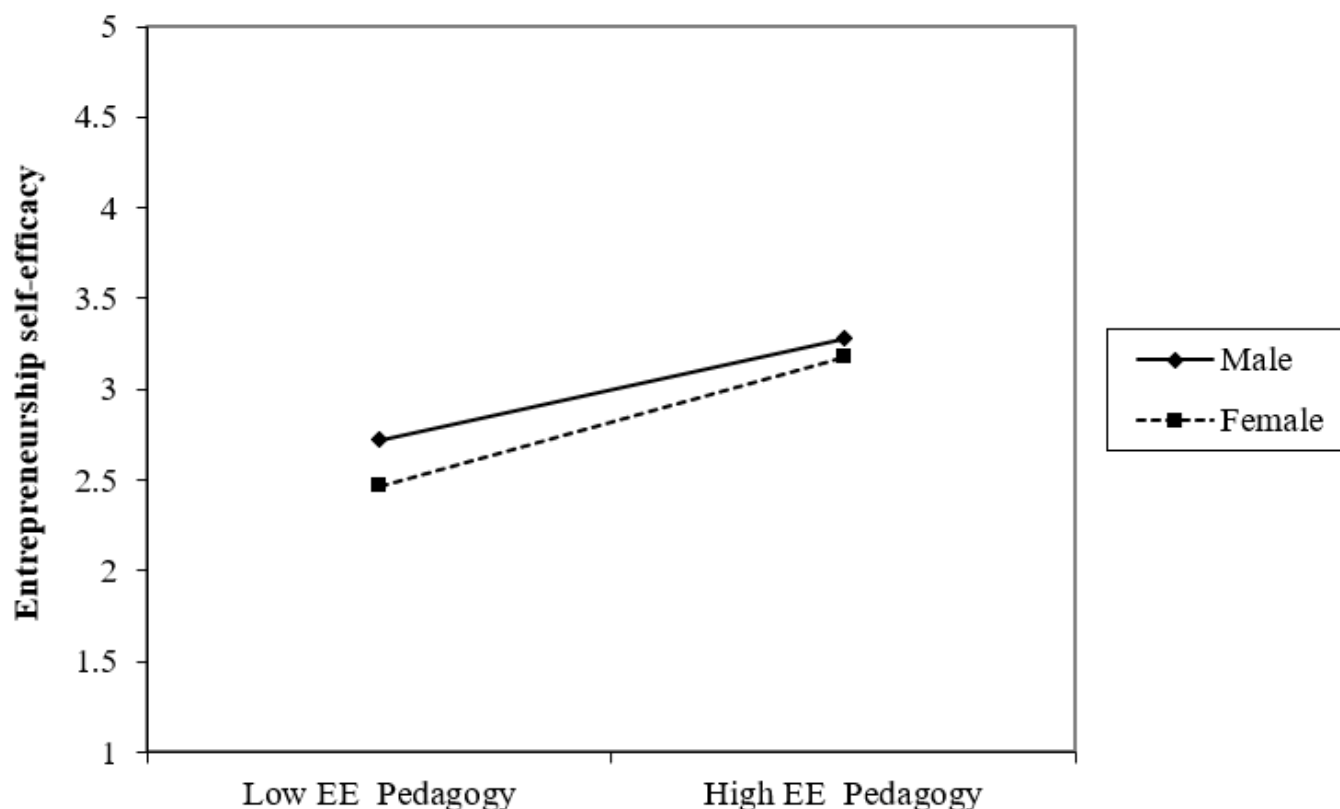


Figure 2
Plot Analysis of Moderating Effect

The significant gap between female and male graduate entrepreneurs, 28.9% and 71.1% respectively, reflects a wider trend in entrepreneurship where women have historically been underrepresented. Understanding the reasons behind this gap is vital to address the systemic obstacles that prevent women from participating in entrepreneurship. Differences in business venture ownership between male and female graduates are largely based on societal biases and cultural factors that really affect the perception of women on their entrepreneurial capabilities. These differences continue to reveal reality whereby even the well-educated women would still be subject to stereotyping and social expectations against their participation in entrepreneurship. Such restrictions, created as barriers, are not only common but also different and run through access to capital, access to social networks, and even to mentorship opportunities among female entrepreneurs. Cultural stereotypes and deeply rooted gender norms can limit the confidence and ambitions of women to pursue entrepreneurial endeavors, even for graduates with EE background. The results also shed light on how common these issues are, particularly among educated women, and call for targeted measures and legislative efforts to remove societal barriers and better create an enabling environment for entrepreneurs. Societies may awaken the unrealized potential in female entrepreneurs and propel social and economic advancement with actions that tackle the root causes and harness gender-equitable opportunities.

4.2.1 Entrepreneurship Education and Entrepreneurial Self-Efficacy

H1 results suggest that entrepreneurship pedagogy significantly influences ESE, with a one-unit increase in entrepreneurship pedagogy resulting in a 27.9% increase in ESE. This justifies that, teaching methods applied in entrepreneurship pedagogy such as sharing case studies of successful entrepreneurs, visits to entrepreneurs and incorporating relevant business practices promotes entrepreneurial confidence. These findings align with the Social Learning Theory, which postulates that ESE is developed by enactive mastery, role modeling and vicarious learning, social persuasion, and physiological state judgments. In this study, enactive mastery was measured through teaching methods that made entrepreneurship courses relevant to the real world. Vicarious learning was measured through teaching methods that involves taking visits to entrepreneurs to learn entrepreneurial activities enabling students to witness real-life challenges of entrepreneurs. Meanwhile, social persuasion was incorporated through interactive teaching methods that allowed instructors, mentors, and guest speakers to provide verbal praise and positive reinforcement, thereby enhancing the students' beliefs in their capabilities. Also, engaging teaching methods which involves stories and cases of great and exposure to entrepreneurial role models, played a role in creating positive physiological state judgments by reducing anxiety and nurturing a motivational learning environment. These findings

highlight the critical role of well-structured entrepreneurship education programs in developing graduate entrepreneurs' self-efficacy through experiential learning, observation, and social reinforcement.

The current results are consistent with past studies by Singh (2020), Soomro & Shah (2022) and Wardana et al. (2020), which also found a positive and significant relationship between EE and ESE. However, unlike the mentioned studies, our study concentrated specifically on the relationship between entrepreneurship pedagogy and ESE. Rengiah (2013) also concurs that university EE through the teaching methods develop the necessary competencies that influences one's ESE. However, unlike Rengiah's study, this study provides a distinctive insight into how EE, can influence ESE of graduates who are already practicing entrepreneurs. The positive relationship between EE and ESE is likely to be influenced by universities' efforts to cultivate conducive learning environments for students, who will eventually become entrepreneurs. Therefore, graduates majored in EE are more inclined to possess a strong sense of self-efficacy in entrepreneurial endeavors.

4.2.2 The Moderating Effect of Gender

Concerning H2, there is no significant relationship between gender and ESE, with female showing smaller effects than male (reference category). This means that ESE varies with gender, but such variance is too weak to conclude decisively that gender affects entrepreneurial self-efficacy in this study. This finding changes the view about a strong link between entrepreneurial traits like these and gender, as shown through numerous studies (Warnecke, 2013). Therefore, the current study provides crucial information on how gender influences ESE development. Previous studies (Chhabra et al., 2020; Dempsey & Jennings, 2014; Shinnar et al., 2014; Wilson et al., 2007) have consistently reported significantly lower levels of ESE among women compared to men; however, this study suggests that such differences may be more subdued in the case of graduate entrepreneurs likely attributable to the rather same educational exposure and entrepreneurial training among them.

Similarly, SRT attributes gender difference in self-efficacy to societal norms and cultural expectations that influence an individual's self-perception and behavior. Entrepreneurship has been male domain, where taking risks, assertiveness, and competitiveness are male roles. As a result, women may internalize these stereotypes and view themselves as less efficacious in entrepreneurial tasks, despite possessing the necessary skills and education. On the other hand, the non-significant relationship in this case implies that such societal differences are becoming increasingly insignificant among the educated, especially graduate entrepreneurs. Women's negotiation of their entrepreneurial aspirations in opposition to societal expectations of femininity (Shinnar et al., 2014) is, based on the current findings, statistically insignificant in influencing graduate entrepreneurs' self-efficacy. Therefore, this study adds to existing knowledge by revealing a non-significant relationship between gender and entrepreneurial self-efficacy among graduate entrepreneurs in Tanzania, implying that education may help in eroding gender-based entrepreneurial self-efficacy differences.

Additionally, the findings of the current study revealed that there is no significant moderating effect of gender on the relation between EE and ESE. This suggests that the relationship between EE and ESE remains relatively consistent irrespective of gender. These results concur with those reported by Singh (2020) who confirmed high correlation between EE and ESE variables, and gender was considered insignificant in relation to ESE level. Though gender represents no significant moderation effect in the relationship between EE and ESE, male graduate SME owners display more significant effect of EE than do female graduate SME owners. This means that there were variations in the way that male and female graduate entrepreneurs benefited from entrepreneurial pedagogical practices. The variations could be caused by differences in learning methods, societal expectations, access to learning resources or culture-shaping norms for entrepreneurship which all determine how EE affects male and female entrepreneurs.

Moreover, SRT offers a good framework for understanding the findings of the current study. Although the gendered expectations discourage women from perceiving themselves as highly self-efficacious in entrepreneurship, EE serves as an equalizing factor. EE provides structured learning experiences, which equip both men and women with entrepreneurial knowledge, skills and attitude to develop ESE. However, although EE has the potential to approximate or equalize gender inequalities, deeply rooted societal norms and ingrained self-perceptions still limit the extent to which women internalize and apply entrepreneurial competencies. The stronger effects of EE observed among male graduate entrepreneurs indicates they find the disutility of the EE to full exposure in theoretical terms as more manageable compared to their female counterparts. Female graduate entrepreneurs potentially encounter additional obstacles related to psychological factors and support systems that hinder their returns to EE. Consequently, in contrast to the widely acknowledged beneficial impacts of EE in influencing ESE across both genders, the underlying explanations can be attributed to the pre-existing conditions of gender norms and societal expectations that persistently account for the disparities in the magnitude of effects experienced by women and men, even in the absence of any moderating influences.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

To conclude, the current study highlights contribution of entrepreneurship education (EE), specifically entrepreneurship pedagogy in the development of entrepreneurial self-efficacy (ESE) among graduate SME owners in Tanzania, adding to the body of research on the role of gender as a moderator in the relationship. The findings strongly support the first hypothesis which showed that there exists a statistically significant positive relationship between entrepreneurship pedagogy and ESE among graduate entrepreneurs who majored in entrepreneurship. This brings out clearly the very need for pedagogical practices as described for building action-oriented entrepreneurial competency and confidence. Contrary to what was originally supposed in the second hypothesis, which stated that there would be gender differences in the effect of entrepreneurship pedagogy on ESE, such differences could not be established for men and women alike in this study on graduate SME owners. This may also provide some challenge to the popular assumption regarding the gender differences in entrepreneurship developments. In addition to this, an analysis was done under gender moderation on the relationship between EE and ESE; rather interestingly, gender was found to be a weak moderator for the effect of EE on ESE. Hence, it indicates that, among the sampled Tanzanian graduate SME owners, the influence of educational interventions would be distributed evenly across genders. These provide detailed information about interrelationships among EE, gender and ESE, thus making lucid the way of running university EE programs in terms of developing entrepreneurial competence for university students who are future entrepreneurs irrespective of gender. The study also explains how EE engenders ESE and also how this operates differentially across the genders. Besides, this is good for policy and practice since it is expected to improve any initiatives meant to capitalize on the inclusive and optimal results of entrepreneurship development, especially for graduates in Tanzania and beyond. Thus, the study adds its voice to the ever-growing scholarly discussions in entrepreneurship education and gender dynamics within entrepreneurial ecosystems.

5.2 Recommendations

The findings of the study provide significant insights for university managers and educators. In order to more effectively assist male and female students aiming to become entrepreneurs, universities may be required to modify EE teaching methodologies. In particular, to effectively tackle gender-specific disparities ESE, universities could introduce a customized curricular, mentoring programmes and support initiatives. Acknowledging the existing gender gap in EE outcomes, resources and support services must to be extended to female graduate entrepreneurs in order to provide fair access and success chances. The extension of access to financial resources, networking opportunities, and mentorship programs can play a pivotal role in mitigating the gender gap in ESE. To further augment graduates' ESE, university educators engaged in EE should be provided with training in interactive methods, experiential learning activities alongside the provision of constructive feedback in assessment practices. These pedagogical practices are efficacious, practical-based teaching methods that can significantly bolster students' confidence in their entrepreneurial competencies. Furthermore, educators are urged to facilitate networking between students and accomplished local entrepreneurs of both genders, thereby promoting psychological resilience, motivation, and alleviating career-related anxiety. These initiatives can ultimately serve to enhance students' confidence and expectations of success in their entrepreneurial pursuits.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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