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**ENTREPRENEURSHIP EDUCATION AND ENTREPRENEURIAL
COMPETENCIES: A CONCEPTUAL, THEORETICAL AND EMPIRICAL
REVIEW**

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Abstract

Entrepreneurship education has emerged as an important strategy for developing individuals with the knowledge, skills, attitudes, and capabilities required to identify opportunities, create value, and manage entrepreneurial ventures. This paper reviews the relationship between entrepreneurship education and entrepreneurial competencies from conceptual, theoretical, and empirical perspectives. The review examines entrepreneurship education as a process that develops entrepreneurial mindset, creativity, innovation, risk management ability, and practical business skills, while entrepreneurial competencies are discussed through dimensions including opportunity recognition, innovation and creativity, risk management, resource mobilization, and networking competencies. The paper adopts a literature review approach by synthesizing relevant academic publications and empirical studies on entrepreneurship education and competency development. The review is guided by Human Capital Entrepreneurship Theory and Experiential Learning Theory, which explain how education, knowledge acquisition, and practical experiences contribute to entrepreneurial capability development. Empirical evidence indicates that entrepreneurship education significantly enhances entrepreneurial competencies, particularly when supported by experiential learning approaches, practical projects, simulations, and entrepreneurial activities. However, existing studies reveal gaps relating to methodological limitations, contextual differences, and reliance on self-reported measures. The paper concludes that entrepreneurship education should emphasize competency-based and experiential approaches to effectively prepare individuals for entrepreneurial action and sustainable venture creation.

Keywords: Entrepreneurship education, entrepreneurial competencies, experiential learning, opportunity recognition, innovation, entrepreneurial skills.

Introduction

Entrepreneurship education has increasingly gained global recognition as an important mechanism for developing individuals with the knowledge, skills, attitudes, and capabilities required to identify opportunities, create value, and successfully manage entrepreneurial ventures (Dangana, Nafiu, & Isienyi, 2023). In contemporary economies characterized by technological changes, employment uncertainty, and increasing demand for innovation, entrepreneurship education is considered a strategic approach for preparing individuals to become opportunity-driven, innovative, and self-reliant (Avidov-Ungar, Herscu & Forkosh-Baruch, 2025). Rather than focusing only on business creation, modern entrepreneurship education emphasizes the development of entrepreneurial mindsets, creativity, problem-solving abilities, risk management skills, and the capacity to mobilize resources effectively (Tahan, Ahmad & Ramayah, 2025).

The increasing emphasis on entrepreneurship education has generated considerable interest among scholars, policymakers, and educational institutions because of its potential contribution to entrepreneurial competency development. Entrepreneurial competencies represent the underlying knowledge, skills, attitudes, and behavioural capabilities that enable individuals to recognize opportunities, develop innovative solutions, manage uncertainty, acquire resources, and build sustainable entrepreneurial ventures (Melo & Videgaray, 2025). Key dimensions of entrepreneurial competencies include opportunity recognition, innovation and creativity, risk management, resource mobilization, and networking capabilities (Robles & Zarraga-Rodriguez, 2015). These competencies are particularly important because entrepreneurial success depends not only on the intention to start a business but also on the ability to effectively identify and exploit opportunities within dynamic business environments.

Despite the growing adoption of entrepreneurship education programmes across universities and other learning institutions, concerns remain regarding the effectiveness of these programmes in producing individuals with practical entrepreneurial competencies. Existing entrepreneurship education initiatives often vary significantly in terms of curriculum content, teaching methods, practical exposure, and institutional support. While some programmes emphasize theoretical knowledge, others incorporate experiential approaches such as business simulations, entrepreneurial projects, internships, and venture creation activities. This variation creates the need for a comprehensive review that explains how entrepreneurship education contributes to the development of entrepreneurial competencies.

The justification for this review is based on the need to integrate fragmented knowledge from conceptual, theoretical, and empirical perspectives to provide a clearer understanding of the relationship between entrepreneurship education and entrepreneurial competencies. Although previous studies have examined different aspects of entrepreneurship education outcomes, many have focused on specific competency dimensions, geographical contexts, or isolated educational interventions. For instance, empirical studies have reported positive relationships between entrepreneurship education and opportunity recognition, innovation capability, creativity, and risk management skills, but limitations remain regarding measurement approaches, contextual differences, and generalizability of findings.

Furthermore, existing studies have highlighted methodological weaknesses such as reliance on self-reported measures, limited geographical coverage, and insufficient attention to actual entrepreneurial behaviours and performance outcomes. These limitations create a gap in understanding the mechanisms through which entrepreneurship education transforms knowledge and learning

experiences into entrepreneurial capabilities. Therefore, this review is important because it synthesizes existing literature to identify common patterns, theoretical explanations, empirical evidence, and areas requiring further research.

Methodology

This study adopted a conceptual literature review methodology to examine existing knowledge on the relationship between entrepreneurship education and entrepreneurial competencies. The review involved the identification, evaluation, and synthesis of relevant theoretical, conceptual, and empirical studies addressing entrepreneurship education, entrepreneurial skills development, and competency outcomes. The review approach was considered appropriate because it allows the integration of diverse perspectives and findings from previous studies to develop a comprehensive understanding of how entrepreneurship education contributes to entrepreneurial competency development.

The information sources for the review were obtained from reputable academic databases and scholarly platforms, including Scopus, Web of Science, ScienceDirect, SpringerLink, Emerald Insight, and Google Scholar. These databases were selected because they provide access to a wide range of peer-reviewed journal articles, theoretical publications, and empirical research in entrepreneurship, management, business education, and innovation studies. Scopus and Web of Science were considered important because they contain high-quality indexed publications and provide reliable sources for scholarly review. ScienceDirect, SpringerLink, and Emerald Insight were selected because they host extensive entrepreneurship and education-related research from internationally recognized journals. Google Scholar was included to improve coverage and identify relevant academic publications that may not appear in restricted databases.

The selection of literature was guided by specific inclusion criteria. Studies were considered relevant when they focused on entrepreneurship education, entrepreneurial competencies, entrepreneurial skills development, opportunity recognition, innovation, risk management, resource mobilization, and networking competencies. Priority was given to recent empirical studies published between 2021 and 2025, while foundational theoretical works were included to provide the conceptual and theoretical foundation of the review.

Studies were excluded where they were unrelated to entrepreneurship education or did not examine competency development outcomes. The reviewed literature was analysed thematically and organized into three major areas: conceptual review, theoretical review, and empirical review. The conceptual review examined the meaning and dimensions of entrepreneurship education and entrepreneurial competencies; the theoretical review analysed theories explaining competency development; while the empirical review synthesized findings from previous studies examining the influence of entrepreneurship education on entrepreneurial competency outcomes. This approach enabled the study to identify common findings, research gaps, and areas requiring further investigation.

Conceptual Review

Entrepreneurship Education

Entrepreneurship education refers to the process of teaching students the skills, knowledge, and attitudes necessary to become entrepreneurs. This includes identifying opportunities, integrating resources, and developing ventures (Jardim & Sousa, 2023). The European Commission defines entrepreneurship education as a process that nurtures innovation, creativity, and self-employment, focusing on developing essential personal qualities and skills for an entrepreneurial mindset (European Commission, 2021a, as cited in Mico & Cungu, 2023).

Entrepreneurship education include experiential learning: Hands-on experiences, such as internships, projects, and simulations, to develop practical skills; Innovation and creativity: encouraging students to develop innovative solutions through creative thinking and risk taking and resilience, teaching students to manage risk and bounce back from failure (Ashraf, et al. 2024).

Entrepreneurial Competency

Entrepreneurship education programmes are designed to augment knowledge, skills, and entrepreneurial proficiency, thereby fostering the growth of new entrepreneurs. Entrepreneurial competence is a central construct in understanding the outcomes of entrepreneurship education. It refers to the underlying characteristics, such as knowledge, skills, motives, and attitudes, that enable individuals to create and manage successful businesses (Park & Kim, 2025; Reis et al., 2021). These competencies include creativity, problem solving, critical thinking, and self-direction, and are essential for navigating the challenges of entrepreneurship in the digital era (OECD, 2023; UNESCO, 2023). Dimensions of entrepreneurial competencies are: opportunity recognition, risk management, innovation and creativity, resource mobilization and networking competencies.

Opportunity recognition is widely regarded as one of the most foundational dimensions of entrepreneurial competence, representing an individual's ability to identify unmet market needs, underutilized resources, and emerging trends that can be exploited for value creation. Exposure of students to entrepreneurship education can strengthen their competencies to identify and act upon business opportunities (Debar Liev et al., 2022).

Risk-taking and risk management represent another critical dimension of entrepreneurial competence, referring to the capacity to assess, tolerate, and manage uncertainty in entrepreneurial decision-making. Entrepreneurship education plays a significant role in developing risk management competence among students (Noombo et al., 2024; Senaya, 2025).

Innovation and creativity are consistently identified in contemporary literature as core dimensions of entrepreneurial competence, essential to the identification of new solutions, the development of novel products, and the adaptation to dynamic market environments. Education that encourages creativity and adaptation, and is based on experiential learning and active engagement, helps to develop entrepreneurial mindsets (Ashraf et al., 2024; Avidov-Ungar et al., 2025).

Resource mobilization competency refers to the ability to identify, acquire, and combine diverse resources: financial, human, social, and material to pursue entrepreneurial opportunities. The European Entrepreneurship Competence Framework (EntreComp) identifies resource mobilization as a core entrepreneurial competency (Kampe and Wach, 2025),

Networking competency refers to an individual's ability to develop, maintain, and leverage professional relationships to access resources, information, and opportunities essential for entrepreneurial success. The entrepreneurship literature has long established a link between social networks and entrepreneurial outcomes (Meoli, Hahn, and Sansone, 2026; Srivastava et al., 2025).

Theoretical Review

Human Capital Entrepreneurship Theory

Human capital entrepreneurship theory emphasizes the role of human capital in driving entrepreneurial success. According to recent studies, human capital, which includes, knowledge, skills, and experience, is a crucial factor in entrepreneurship entry and performance (Sheng et al., 2024; Braunerhjelm & Lappi, 2023). The theory postulates that knowledge, acquired from education and experience, is considered a resource that is diversely dispensed across individuals, which informs the basis for understanding the disparities in identification and exploitation of opportunities (Shane & Vankataraman, 2000). Al-Awlaqi et al. 2023) affirm that human capital encompasses knowledge,

abilities, skills, experience, and health, which generate returns for labor. This implies that the human capital theory of entrepreneurship influences entrepreneurship entry, innovation, and performance (Sheng et al., 2024; Braunerhjelm & Lappi, 2023). Specifically, Shane & Vankataraman (2000) argue that human capital factors are salient to idea generation, opportunity recognition and business planning. This, according to Anderson & Miller (2003) implies that the components of an entrepreneurship programme have a prominent role to play in enhancing the development of abilities associated with successful entrepreneurial outcomes of an entrepreneurship programme.

The human capital entrepreneurship theory was used in the work of Olokundun (2017) in his work “Perceptions of Students on Entrepreneurship Education and Entrepreneurial intentions in selected Nigerian Universities. The theory was also used in the study conducted by Matanda, or the role of Human capital and entrepreneurial orientation on radical product innovation in small-scale carpentry workshops in Nairobi.

Experiential Learning Theory

The experiential learning theory was propounded by Kolb (1984). The theory states that learning involves the process of knowledge creation through transformation of experience. In the same vein, Zepeda (2013) states that experiential learning theory is hinged on the assumption that learning takes place between individuals and the environment. Knowles, Holton, & Swanson (2011) argue that adults learn effectively when new information is presented in real life situations using a problem-solving approach in classroom activities rather than the traditional content- knowledge practices represent an example of a real- life situation approach to learning. Hence, experiential learning theory views learning as a social process of adaptation which employs a dynamic and holistic perception of leaning (Zapeda, 2013).

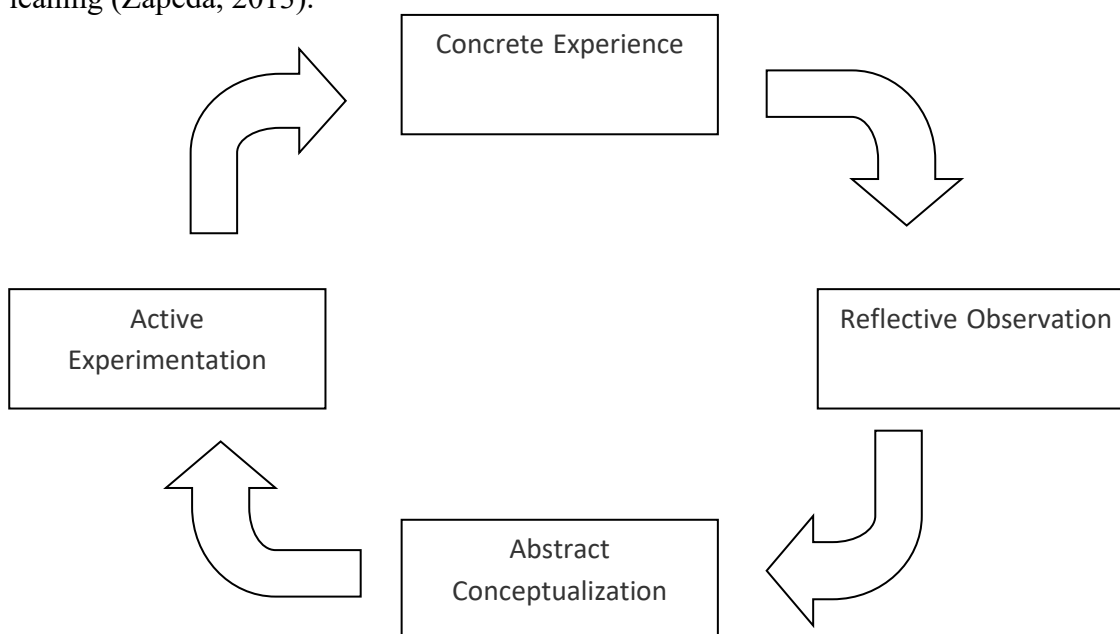


Figure 1: Experiential Learning Theory

Source: Kolb's Experiential Learning Model (1984)

Kolb's learning cycle involves two interrelated ends which are grasping and transforming experience. In figure 1 above, the vertical axis illustrates the grasping mode of experience beginning from concrete experience as the initial stage to conceptualization. Both stages refer to the various approaches adopted by individuals geared at the acquisition of information from the real world through either apprehension or comprehension. Apprehension is achieved as a consequence of the tangibility and qualities of an immediate experience, while comprehension is reached as a consequence of the conceptual interpretation and symbolic representation of experience. As suggested by Knowles, Hilton, & Swanson (2011), the initial stage of Kolb's model, which is concrete experience, can be achieved through the use of simulations or entrepreneurial related games,

demonstrations, presentation with real world experiences and social problems. These teaching methods will ensure that students are fully involved in new and concrete experiences. Therefore, entrepreneurship educators can use more creative pedagogical methods such as sharing content, conceptual mapping, and project-based learning particularly in the active conceptualization stage of the learning cycle. The goal here will be the usage of appropriate pedagogies that motivate students to know how to think and not what to think as regards entrepreneurial related goals. Gibb (2002) argues that entrepreneurs are considered as individuals who are action oriented, whose learning is typically experientially based.

The experiential learning theory was used in the work of Olokundun (2017) in his work “Perceptions of Students on Entrepreneurship Education and Entrepreneurial Intentions in Selected Nigerian Universities”. This theory was also used by Mary (2016) in her work “Experiential Learning theory from Theory to Practice”. The theory was also useful to Alice and David (2011) in their work, “Experiential Learning Theory: a Dynamic, Holistic Approach to Management Learning, Education and Development”. This theory was also useful in the work of Agwu, Onwuegbuzie & Ezeifeka (2017) where they examined the impact of entrepreneurship education on new venture creation.

In summary, the experimental learning theory motivates the employment of holistic teaching methods and pedagogies that attempt to inculcate curriculum content knowledge, entrepreneurial skills, as well as motivate intentions to become entrepreneurs (Neck & Greene, 2011).

Empirical Review

Entrepreneurship Education and Entrepreneurial Competence

Dangana et al. (2023) conducted research with the main objective of assessing how entrepreneurship education contributes to the acquisition of entrepreneurial competencies among tertiary institution students in Kogi State, Nigeria. The variables used included lecturers' competence and students' entrepreneurial knowledge and skills as independent variables, while entrepreneurial competence served as the dependent variable. The methodology adopted a quantitative approach with a sample of 255 students, and regression analysis was used to analyze the data. The findings showed that both lecturers' competence and students' entrepreneurial knowledge and skills significantly affect students' overall entrepreneurial competence. A critique of this study is that it did not disaggregate entrepreneurial competence into its specific dimensions, such as opportunity recognition, risk management, or networking, making it difficult to understand which specific competencies were most affected. Additionally, the study relied entirely on student self-assessments without any objective measure of competence, such as performance-based tasks or lecturer evaluations. The sample was also limited to one state, which reduces the generalizability of the findings to other parts of Nigeria.

Letshaba et al. (2025) carried out a study with the main objective of investigating the relationship between entrepreneurship education and opportunity recognition and exploitation among TVET college students in South Africa. The variables used were entrepreneurship education quality as the independent variable, while opportunity recognition and opportunity exploitation served as dependent variables. The methodology employed a quantitative approach using structured questionnaires, and the data were analyzed using partial least squares (PLS) analysis. The findings revealed a significant positive correlation between the quality of entrepreneurship education and students' ability to recognize and act upon entrepreneurial opportunities, demonstrating that entrepreneurship education influences both opportunity recognition and exploitation skills. A critique of this study is that it focused only on TVET college students, which may limit the applicability of the findings to university or polytechnic students who experience different types of entrepreneurship education curricula. Furthermore, the study measured opportunity recognition and exploitation as separate constructs but did not adequately explain how the two constructs relate to each other or whether one precedes the other. The study also did not control for students' prior business experience, which could significantly influence opportunity recognition ability independent of entrepreneurship education.

Hassan et al. (2024) conducted research with the main objective of examining whether entrepreneurial self-efficacy, alertness, and opportunity recognition mediate the relationship between entrepreneurship education and entrepreneurial intentions among students in three Nigerian polytechnics. The variables used included entrepreneurship education as the independent variable, entrepreneurial self-efficacy, alertness, and opportunity recognition as mediating variables, and entrepreneurial intentions as the dependent variable. The methodology employed a quasi-experimental design with measurements taken before and after entrepreneurship education interventions. The findings showed that entrepreneurship education significantly improved students' opportunity recognition competencies, and opportunity recognition acted as a key mediator between entrepreneurship education and entrepreneurial intentions. A critique of this study is that the quasi-experimental design, while stronger than a cross-sectional design, still lacked random assignment, which may have introduced selection bias. Additionally, the study was conducted in only three polytechnics in Nigeria, and the researchers did not provide detailed information about the specific content or teaching methods used in the entrepreneurship education interventions, making replication difficult. The study also did not follow up with participants to determine whether improved opportunity recognition translated into actual venture creation.

Tahan et al. (2025) conducted a study with the main objective of examining the effect of entrepreneurship education on innovation intentions among university students, with opportunity recognition as a psychological mediator. The variables used included student perceptions of entrepreneurship education environments as the independent variable, opportunity recognition as the mediating variable, and innovation intentions as the dependent variable. The methodology employed a multi-university empirical survey design with data analyzed using structural equation modeling. The findings revealed that student perceptions of supportive entrepreneurship education environments foster opportunity recognition, which in turn is positively associated with innovation intentions and related entrepreneurial competencies. A critique of this study is that it relied entirely on student perceptions of entrepreneurship education environments rather than objective measures of curriculum quality, teaching methods, or learning outcomes. Perceptions can be influenced by many factors unrelated to actual educational quality, such as student mood or personality traits. Furthermore, the study used innovation intentions as an outcome variable rather than actual innovative behavior or outputs, which weakens the practical significance of the findings. The study also did not specify which aspects of the entrepreneurship education environment (e.g., teaching quality, facilities, peer support) were most strongly associated with opportunity recognition.

Jonuskiene et al. (2025) conducted a study with the main objective of mapping students' entrepreneurial competences across nine European universities using the European EntreComp Framework. The variables used included 15 key entrepreneurial competencies, with particular focus on risk management, financial literacy, and business planning. The methodology involved a survey-based assessment of 786 students across nine universities in the NEOLAiA Alliance. The findings specifically identified risk management as a "mid-level competency" requiring further development among students, alongside financial literacy and business planning, and the results served as a data-driven roadmap for universities to strengthen their entrepreneurial learning ecosystems. A critique of this study is that it relied entirely on student self-assessments of their risk management competency, which may not accurately reflect their actual ability to manage risks in real business situations. Additionally, the study was conducted exclusively in European universities, and the findings may not be transferable to developing country contexts such as Nigeria, where risk environments for entrepreneurs are significantly different. The study also did not link risk management competency scores to any behavioral outcomes, such as whether students actually started businesses or successfully managed risks in real ventures.

Umoru and Ifeolu (2025) conducted a study with the main objective of investigating entrepreneurship creativity and risk-taking management skills acquisition for sustainable self-reliance through the vocationalization of secondary school education in Nigeria. The variables used included creativity and risk management as key entrepreneurial skills, while sustainable self-reliance served as the outcome variable. The methodology employed a survey of 372 respondents, including teachers and educational inspectors, and data were analyzed using descriptive statistics. The findings revealed that stakeholders perceived risk management (mean = 3.07) and creativity as essential skills acquirable through vocational education, but significant perceptual differences existed between teachers and inspectors regarding risk management skills. The study concluded that vocational education with hands-on projects can effectively equip students with entrepreneurial competencies for self-reliance. A critique of this study is that it focused on secondary school education rather than polytechnic or tertiary education, which is the focus of the present study, limiting its direct relevance. Additionally, the study measured perceptions of skill importance rather than actual skill acquisition or competence levels, meaning the findings do not demonstrate that students actually developed risk management competency. The study also did not specify what types of hands-on projects were used or how they were designed to develop risk management skills.

Ferreira Dias et al. (2025) conducted a study with the main objective of presenting and testing a systematic game-based pedagogical model for developing entrepreneurial competencies through the Erasmus+ "Game it Away!" project. The variables used included game-based learning activities as the independent variable, while creativity, creative problem-solving, and entrepreneurial mindset served as dependent variables. The methodology involved implementing a "Play, Create, Pitch" cycle requiring hands-on creation of a physical game, with students from diverse academic backgrounds. The findings established a direct link between the EntreComp framework and learning activities, showing that the game-based model effectively immersed students in a simulated entrepreneurial journey requiring creative problem-solving, and the deliberate blend of creative hands-on practice with structured reflection proved effective for developing entrepreneurial mindsets in higher education. A critique of this study is that the sample included students from diverse academic backgrounds but the researchers did not provide disaggregated results by discipline, making it unclear whether the game-based model works equally well for business students versus engineering or arts students. Additionally, the study measured creativity as part of the intervention outcomes but did not use a standardized or validated creativity scale, raising questions about the reliability of the findings. The study also did not include a control group receiving traditional entrepreneurship instruction for comparison.

Madugu et al. (2023) conducted a study with the main objective of examining the influence of entrepreneurship education on students' innovation and creativity in Nigerian public universities. The variables used included entrepreneurship education curriculum content and teaching methods as independent variables, while innovation and creativity competencies served as dependent variables. The methodology involved a survey of university students with quantitative data analysis. The findings highlighted that curricula emphasizing creative problem-solving and innovation produce graduates who are better equipped to engage in entrepreneurial ventures, and entrepreneurship education positively influences students' innovation and creativity in Nigerian public universities. A critique of this study is that it focused on Nigerian public universities rather than polytechnics, and the findings may not apply to the polytechnic context where teaching methods and student populations differ. The study did not provide clear definitions or measurement scales for innovation and creativity, making it difficult to understand exactly what competencies were assessed. Additionally, the study did not control for students' prior creative abilities or experiences, which could confound the relationship between entrepreneurship education and creativity outcomes.

Qiang et al. (2024) carried out a study with the main objective of analyzing the effects of entrepreneurship education on innovative talent training models from a new normal perspective. The

variables used included institutional environment and supporting infrastructure as two dimensions of entrepreneurship education (independent variables), while students' innovation capability served as the dependent variable. The methodology employed a mixed-method approach including both quantitative surveys and qualitative data collection. The findings identified that institutional environment and supporting infrastructure have significant direct effects on students' innovation capability, and the study recommended that learning institutions combine innovation-driven entrepreneurial ecosystem cultivation with entrepreneurship education programs while strengthening institutional environment and infrastructure support. A critique of this study is that the research was conducted in a non-Nigerian context (likely Asia based on author affiliations and references), and the findings may not be directly applicable to the Nigerian polytechnic context where institutional resources and infrastructure are often limited. The study also did not clearly define what specific aspects of "supporting infrastructure" were most influential on innovation capability, limiting practical recommendations. Furthermore, the mixed-method approach was described but the qualitative findings were not thoroughly integrated with the quantitative results.

Chagi and Ncanywa (2023) carried out a study with the main objective of enhancing university entrepreneurship programmes for postgraduate students by identifying barriers to venture creation. The variables used included access to resources, funding, mentorship, and institutional support structures as independent variables, while venture creation served as the dependent variable. The methodology employed a qualitative case study design using semi-structured interviews with postgraduate students, lecturers, and managers, grounded in an integrated theoretical framework combining the Theory of Planned Behaviour, Social Cognitive Theory, and Human Capital Theory. The findings highlighted significant gaps in access to resources, funding, and mentorship as barriers to venture creation, and the study recommended establishing institutional support structures including innovation hubs, seed funding, networking facilitation, and digital support systems to foster an enabling entrepreneurial ecosystem. A critique of this study is that it was conducted in a non-Nigerian context (likely South Africa based on author affiliations), and the institutional and economic environments differ from Nigeria in important ways. The study also focused exclusively on postgraduate students, whereas the present study focuses on final year diploma students who may have different resource mobilization needs and capabilities. Additionally, the qualitative design with a small sample size limits the generalizability of the findings.

Manzi-Puertas et al. (2025) conducted a study with the main objective of examining how student entrepreneurs overcome resource constraints through entrepreneurial bricolage and effectuation, with innovative behaviour as a mediating mechanism. The variables used included entrepreneurial bricolage as the independent variable, innovative behaviour as the mediating variable, and discovery and exploitation activities as dependent variables. The methodology drew on data from 101 student entrepreneurs in the United Kingdom and employed PLS-SEM analysis. The findings revealed that entrepreneurial bricolage positively influences both discovery and exploitation activities, with innovative behaviour fully mediating these relationships, enabling student entrepreneurs to transform resource limitations into actionable entrepreneurial outcomes. The study identified four dimensions of innovative behaviour that facilitate resource mobilization: questioning assumptions, observing resource-use patterns, experimenting with resource combinations, and networking for resource mobilization. A critique of this study is that it was conducted exclusively in the United Kingdom, where student entrepreneurs have access to different types of resources and support systems than Nigerian polytechnic students. The sample size of 101 student entrepreneurs is relatively small for PLS-SEM analysis, potentially limiting the statistical power and stability of the findings. Additionally, the study measured bricolage and innovative behaviour through self-report surveys rather than observing actual resource mobilization behaviour, which may introduce common method bias.

Melo and Videgaray (2025) conducted a study with the main objective of evaluating and comparing the effectiveness of an entrepreneurship competencies training program delivered in two modalities (in-person and online) on six entrepreneurial competencies, including networking. The variables used included training program modality (in-person vs. online) as the independent variable, while networking competency and five other entrepreneurial competencies served as dependent variables. The methodology employed a descriptive, comparative, pre-experimental, longitudinal design with two measurements taken before and after treatment, involving 51 adults with higher education studies (23 in-person, 28 online). The findings showed a statistically significant improvement in the level of five competencies for the remote group and four for the in-person group, with no significant differences between modalities, highlighting the importance of promoting diverse entrepreneurial skills including networking through structured interventions regardless of delivery format. A critique of this study is that the sample size was very small (51 participants total), which limits the statistical power and generalizability of the findings. The study also used a pre-experimental design without a control group, making it impossible to rule out alternative explanations for the observed improvements, such as maturation or test-taking effects. Additionally, the study did not clearly define how networking competency was measured or what specific networking behaviours constituted the competency.

Srivastava et al. (2025) carried out a study with the main objective of analyzing the hierarchical relationships among elements of entrepreneurial education to guide course design. The variables used included various elements of entrepreneurial education, with demonstration of start-up success stories and enhancement of networking skills identified as driving elements, while leadership capabilities, self-assessment against odds, and business feasibility analysis were identified as dependent elements. The methodology employed a systems approach using the Total Interpretive Structure Model (TISM) and MICMAC analysis, with data from experts using the nominal group technique. The major findings highlighted the demonstration of start-up success stories and enhancement of networking skills as the most crucial elements of entrepreneurial education, providing actionable insights for educational policymakers, academicians, and content developers on designing course structures that foster entrepreneurial skills and innovation among students. A critique of this study is that the findings are based on expert opinions rather than empirical data from students or actual educational outcomes, meaning the identified hierarchical relationships may not reflect what actually works in practice. The study also did not test whether courses designed according to these principles actually produce better networking competency outcomes than traditionally designed courses. Furthermore, the research was conducted in a non-Nigerian context (likely India based on author affiliations), and the findings may not directly apply to the Nigerian polytechnic education system.

Discussion

The synthesis of the conceptual, theoretical, and empirical reviews demonstrates that entrepreneurship education serves as an important foundation for developing entrepreneurial competencies required for effective entrepreneurial action. Conceptually, entrepreneurship education is viewed as a structured learning process aimed at equipping individuals with entrepreneurial knowledge, skills, attitudes, and behaviours necessary for opportunity identification, innovation, venture creation, and business sustainability. The review indicates that entrepreneurship education has evolved from traditional classroom-based business instruction toward competency-based approaches that emphasize creativity, experimentation, problem-solving, and practical application.

The conceptual review further reveals that entrepreneurial competencies represent multidimensional capabilities rather than a single skill. Opportunity recognition enables individuals to identify market gaps and emerging possibilities, while innovation and creativity support the development of new products, services, and solutions. Risk management competency enables entrepreneurs to make informed decisions under uncertainty, whereas resource mobilization and networking competencies enhance access to financial, human, and social resources needed for venture development. Therefore,

entrepreneurship education contributes to entrepreneurial readiness by developing a combination of cognitive, behavioural, and social capabilities.

From the theoretical perspective, the review demonstrates that Human Capital Entrepreneurship Theory provides a strong explanation for the link between entrepreneurship education and entrepreneurial competencies. The theory suggests that education enhances individuals' knowledge, skills, and experiences, which subsequently improve their ability to identify and exploit entrepreneurial opportunities. Entrepreneurship education therefore represents an investment in human capital that strengthens entrepreneurial capacity and improves the likelihood of successful entrepreneurial engagement.

Similarly, Experiential Learning Theory explains why practical learning approaches are essential in entrepreneurship education. The theory argues that knowledge is created through the transformation of experience, implying that entrepreneurial competencies are best developed when learners participate in activities such as simulations, business projects, case analysis, mentoring, and venture development exercises. This explains why studies increasingly emphasize experiential and action-oriented teaching methods as more effective than purely theoretical approaches.

Empirical evidence reviewed in the paper generally confirms a positive relationship between entrepreneurship education and entrepreneurial competency development. Studies among tertiary students in Nigeria and other contexts show that entrepreneurship education improves entrepreneurial knowledge, opportunity recognition, innovation capability, creativity, and risk management skills. For example, Dangana et al. (2023) found that entrepreneurship education and students' entrepreneurial knowledge significantly influence entrepreneurial competence among tertiary students, while Letshaba et al. (2025) demonstrated that quality entrepreneurship education enhances opportunity recognition and exploitation abilities.

However, the empirical review also reveals important limitations. Many studies depend heavily on self-reported questionnaires, making it difficult to determine whether students possess actual entrepreneurial abilities or only perceived competencies. Other studies are limited by single-location samples, small sample sizes, and cross-sectional designs, which restrict the generalizability of findings. Furthermore, some studies examine entrepreneurial intentions rather than actual entrepreneurial behaviours such as business creation, innovation outputs, or venture performance.

Overall, the review suggests that entrepreneurship education contributes significantly to entrepreneurial competency development when supported by appropriate curriculum design, experiential teaching approaches, institutional support, and practical entrepreneurial exposure. The effectiveness of entrepreneurship education depends not only on the availability of entrepreneurship courses but also on the quality of learning experiences provided to students. Future entrepreneurship education programmes should therefore focus on competency-based frameworks that integrate theory with practice, enabling learners to develop the capabilities required for entrepreneurial success.

Conclusion

This review examined the relationship between entrepreneurship education and entrepreneurial competencies from conceptual, theoretical, and empirical perspectives. The review established that entrepreneurship education plays a critical role in preparing individuals with the knowledge, skills, attitudes, and capabilities required to engage effectively in entrepreneurial activities. It extends beyond teaching business concepts by developing entrepreneurial mindsets, creativity, innovation capacity, opportunity recognition abilities, and the confidence required to operate within uncertain business environments.

Based on the review findings, entrepreneurship education should be redesigned around competency development rather than knowledge delivery alone. Educational institutions should integrate experiential learning methods such as entrepreneurship projects, simulations, mentorship programmes, incubation activities, and industry engagement to strengthen practical entrepreneurial capabilities. Policymakers and educators should also develop assessment frameworks that measure actual entrepreneurial skills and behaviours rather than relying exclusively on students' perceptions. In conclusion, entrepreneurship education remains a powerful instrument for developing entrepreneurial competencies and preparing individuals for entrepreneurial action. However, its success depends on the extent to which educational systems create meaningful learning experiences that transform theoretical knowledge into practical entrepreneurial capability.

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