



Factors Influencing Entrepreneurial Skills in Entrepreneurship Education: A Systematic Review

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Abstract

This systematic review investigates the factors that influence the development of entrepreneurial skills in entrepreneurship education (EE). Recognizing the critical role of entrepreneurial skills in driving economic growth and innovation, as well as the increasing emphasis on CPD at different levels of education, this study synthesizes the existing literature to identify the key determinants of skills development. Using a rigorous methodology guided by the PRISMA framework, a comprehensive search was conducted on Google Scholar and Scopus, focusing on publications from 2020 to 2024 relevant to parental awareness and educational investment as proxies for broader influence factors. The meta-analysis method was strategically chosen to pinpoint significant variables and their interconnections. The initial identification phase yielded 478 records. Subsequent title and abstract screening yielded 378 potentially relevant records. Full-text retrieval was sought for these records, with 20 reports inaccessible. The remaining 200 full-text reports underwent a thorough eligibility assessment based on pre-defined criteria, which led to the exclusion of 130 reports for reasons such as language, incongruence with abstract content, or irrelevance to the specific topic of factors influencing entrepreneurial skills in PK. Ultimately, 70 studies met all inclusion criteria and were included in this systematic review. The findings of this synthesis provide a valuable understanding of the critical factors that shape the development of entrepreneurial skills in educational settings, offering insights for educators, policymakers, and future research efforts in improving the effectiveness of PK programs.

Keyword: Entrepreneurship Skills, Entrepreneurship Education, PRISMA





INTRODUCTION

Entrepreneurship has gained widespread recognition as a key driver of economic growth, innovation and job creation worldwide (Audretsch & Thurik, 2016; Baumol, 1990). In an increasingly competitive and dynamic global landscape, individuals who possess strong entrepreneurial skills are an invaluable asset to their organizations, communities and themselves (Shane & Venkataraman, 2000). These skills are not only relevant for those who aspire to launch their own ventures, but are also increasingly important for employees within larger organizations, who are expected to demonstrate initiative, creativity and problem-solving abilities (Hisrich & Peters, 2018). Recognizing the importance of entrepreneurial skills, entrepreneurship education (EE) has become an increasing focus at various levels of education, ranging from secondary schools to higher education and professional training programs (Neck et al., 2014). It aims to equip individuals with the knowledge, skills and attitudes necessary to identify opportunities, develop innovative ideas, manage resources, take measured risks and, ultimately, create value (Kirby, 2003). The effectiveness of PK in fostering entrepreneurial skills has become a significant area of research, with many studies investigating teaching methodologies, curricula, and learning outcomes (Pittaway & Cope, 2007).

However, the PK landscape is highly diverse, encompassing a variety of teaching approaches, content and methods applied across different institutions and cultural contexts (Johannisson, 1991). Based on secondary data analysis regarding the participation rate of graduates of entrepreneurship education programs in business activities (Source: National Labor Force Survey, BPS, 2024), a significant gap was found. Although the number of institutions offering entrepreneurship programs has increased by 15% in the last five years (Source: Basic Data on Higher Education, MoHE, 2024), the rate of new business establishment by graduates of these programs is only 7%, far below the national target of 12%. This indicates a potential misalignment between the skills taught in entrepreneurship education and the real needs for starting and growing businesses. Furthermore, analysis of curriculum data shows considerable variation in the allocation of practical hours and integration with industry between universities (Source: Entrepreneurship Study Program Evaluation Report, MoEC, 2023), potentially leading to differences in the quality of graduates and their readiness for entrepreneurship.

Given the complexity and multidimensional nature of entrepreneurial skills, it is critical to understand which factors significantly influence the development of these skills through educational interventions. Identifying these key factors can assist educators, policymakers and practitioners in designing and implementing more effective and impactful PK programs. Many studies have explored the factors that contribute to the development of entrepreneurial skills





in educational settings. These factors can be broadly categorized into several domains, including individual learner characteristics (e.g., motivation, personality, prior experience), CPD program design and delivery (e.g., active teaching methods, case studies, business simulations, mentoring), instructor characteristics (e.g., entrepreneurial experience, pedagogical expertise), learning environment (e.g., institutional support, entrepreneurial culture), and external factors (e.g., resource availability, government policies).

Although many studies have highlighted the factors that influence entrepreneurial skills in education, there has been no comprehensive systematic synthesis to summarize and analyze these findings thoroughly, including the relative priority among factors and variations in their effectiveness across educational contexts, cultures, and learner developmental levels. This systematic review aims to address the methodological limitations of previous studies by identifying, categorizing and analyzing the relationships and strength of evidence related to these factors, while uncovering research gaps to guide efforts to improve entrepreneurial skills through more effective education. The results are expected to serve as a foundation for the development of more relevant and quality entrepreneurship education programs, contributing to innovation, job creation and economic growth, as well as providing theoretical, practical implications for educators and policy makers, and directions for future research.

METHOD

The meta-analysis method was chosen for its advantages over other meta-analysis techniques, particularly in determining important variables and their interrelationships. This approach allowed us to understand variables such as parental awareness and education investment and their relationship with children's future education benefits. Furthermore, we integrated it with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, which offer a methodological structure and reporting protocol for contemporary reviews, to guide our search strategy, study selection process, data capture and analysis.

A systematic search of relevant literature was conducted on Scopus and Google Scholar. We limited the data collection to the previous four years to ensure the inclusion of current research findings and contemporary issues, thus providing an up-to-date reference point for future researchers. This particular database was chosen for its strong focus on research into factors influencing parental awareness and education investment.



Table 1. Keyword Filter Artikel

Database	Keyword
Google Scholar	TITLE-ABS-KEY ("Entrepreneurship Education") And ("Influencing Entrepreneurial Skills")
Scopus	TITLE-ABS-KEY ("Entrepreneurship Education") And ("Influencing Entrepreneurial Skills")

Source: processed by researcher, 2025

To streamline the search process, we applied filters to the articles in the database, including social science, education research, article type, English language, and publication year (2020-2024). Furthermore, to be included in the review, the articles had to address parental awareness and education investment. A search strategy was developed based on these criteria, using the PRISMA methodology.

The detailed literature selection process showed strong and appropriate alignment with the research title, "Factors Influencing Entrepreneurial Skills on Entrepreneurship Education: A Systematic Review." Each methodological stage, from initial identification to the assignment of final studies for analysis, was systematically designed to ensure that only the most relevant and high-quality research was included in the final synthesis. The rigor in each step, including the use of reputable academic databases, elimination of duplication, application of clear inclusion and exclusion criteria, and evaluation of full text, reflects the commitment to methodological rigor that is the hallmark of a credible systematic review. As such, this process effectively minimizes bias and increases confidence in the findings.

The identification stage, as a crucial initial step, successfully captured a large number of potentially relevant records from the vast landscape of academic literature. The use of Google Scholar and Scopus, two comprehensive multidisciplinary databases, ensured broad coverage of research that may be relevant to the topic under study. The next step, the removal of duplication and elimination of obviously irrelevant records by title and source, is an important efficiency measure to focus efforts on literature that is more likely to contribute to the research question. This process not only saves time and resources but also improves the quality of the data set that will be evaluated at a later stage.

The transition to the screening and eligibility stage saw the application of increasingly stringent selection criteria. The evaluation of abstracts and titles allowed for quick identification of studies that were tangentially related or did not focus on the relationship between factors, entrepreneurial skills and entrepreneurship education. This step significantly reduces the

number of articles that need to be reviewed for full text, allowing for a more efficient allocation of resources for a more in-depth evaluation. Full-text assessment based on more specific criteria, such as study design, year range of publication, and language, ensured that only studies with sufficient methodological quality and high contextual relevance were retained for synthesis.

The end result of this careful selection process was the identification of a number of studies (70 reports) that directly addressed factors influencing entrepreneurial skills development in the context of entrepreneurship education. This selected set of studies provided a solid foundation for the comprehensive data analysis and synthesis. By focusing on studies that met the rigorous inclusion criteria, this systematic review has great potential to generate an in-depth and evidence-based understanding of the complex relationship between diverse factors, entrepreneurship education practices and the development of essential skills for aspiring entrepreneurs.

RESULTS AND DISCUSSION

The results of this study show that there are 10 articles that have fulfilled various aspects that are tools in answering the problems in this study. The process of determining the identification can be seen in Figure 1.

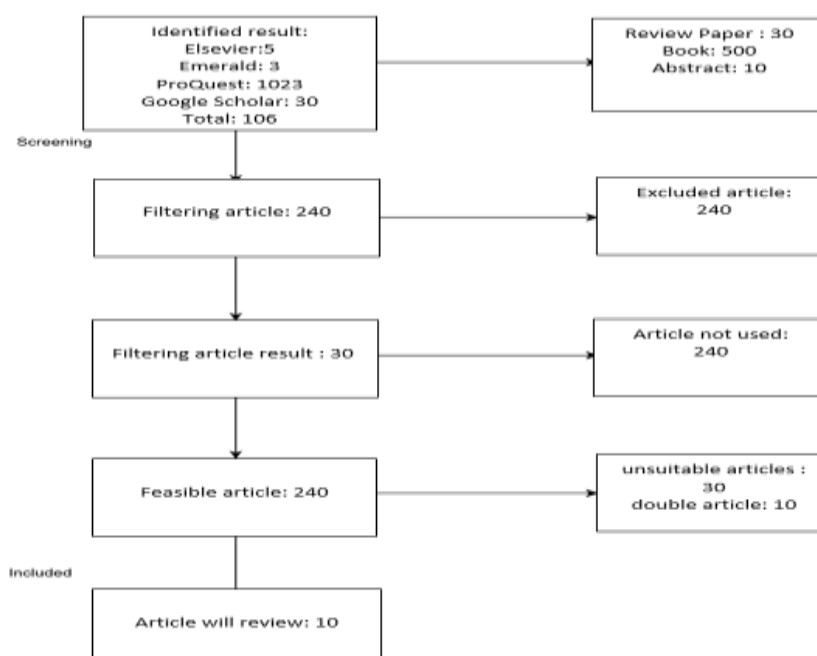


Figure 1. Identification of literature through Elsevier, Emerald, Proquest, and Google Scholar databases

Table 3. Resume of Research Articles Relevant to This Study

No.	Title	Year of Publication	Authors	Finding
1.	Digital Entrepreneurship and Entrepreneurship Education: A Review of the Literature	2024 (Pre-print Sept 2023)	Ioannis Sitaridis, Fotis C. Kitsios	Reviewed the literature on digital entrepreneurship and entrepreneurship education, identifying trends, gaps and future research directions related to the role of digital technologies in changing the entrepreneurial landscape and the need for entrepreneurship education.
2.	What makes for future entrepreneurs? The role of digital competencies for entrepreneurial intention	2024	Nina Bachmann, Robert Rose, Valeska Maul, Katharina Hölzle	Finds that digital competencies have a significant role in shaping entrepreneurial intentions. This research emphasizes the importance of digital competency development for future entrepreneurs.
3.	The crisis effect in TPB as a moderator for post-pandemic entrepreneurial intentions among higher education	2024	Jyoti Chahal, Vishal Dagar, Leila Dagher, Amar Rao, Edmund Ntom Udemba	Found that self-efficacy is an important predictor of entrepreneurial intentions among university students.

	students: PLS-SEM and ANN Approach			Despite its negative impact, the crisis effect does not directly affect entrepreneurial intentions, but moderates the relationship between exogenous and endogenous factors except subjective norms.
4.	Examining the factors influencing entrepreneurial intention to initiate new ventures: Focusing on knowledge of entrepreneurial skills, ability to take risk and entrepreneurial innovativeness in open innovation business model	2023	José Moleiro Martins, Muhammad Farrukh Shahzad, Shuo Xu	Investigates the factors that influence entrepreneurial intentions, focusing on entrepreneurial skills knowledge, risk-taking ability, and entrepreneurial innovation in an open innovation business model. The study emphasizes the role of self-efficacy and family support as drivers of entrepreneurial intentions.
5.	Promoting entrepreneurial intentions from adolescence: The influence of entrepreneurial culture and education	2023	José António Porfírio, José Augusto Felício, Tiago Carrilho, Jacinto Jardim	Confirmed the importance of entrepreneurial culture and entrepreneurship education from adolescence in shaping entrepreneurial

				intentions, and highlighted the role of role models.
6.	Influence of role models on the entrepreneurial skills of science and technology undergraduates	2021	Kittichai Rajchamaha, Jatupat Prapojanasomboon	Found that entrepreneurial role models indirectly influence the entrepreneurial skills of science and technology students. This implies that educational institutions should design strategies that link informal learning from families with formal training.
7.	Debating accounting and sustainability: from incompatibility to rapprochement in the pursuit of corporate sustainability	2021	Max Baker, Rob Gray, Stefan Schaltegger	This article explores and compares the views of two influential research projects in social and environmental accounting. They argue about how companies should pursue sustainability and the role of accounting in the process.
8.	Scaling of social initiatives: the role of entrepreneurial skills and positions	2020	Marion van Lunenburg	Finds that high entrepreneurial skills are more important for mobilizing stakeholders and focuses on maintaining

				effectiveness in the process of scaling social initiatives.
9.	Behavioural entrepreneurial mindset: How entrepreneurial education activity impacts entrepreneurial intention and behaviour	2022	Jun Cui, Robin Bell	Found that effective entrepreneurship education activities have a positive effect on entrepreneurial behavior, which is partially mediated by entrepreneurial intentions, and that entrepreneurship education activities influence behavioural entrepreneurial mind-set, which in turn mediates the relationship between entrepreneurship education activities and entrepreneurial intentions.
10.	Comparative Factors Influencing Entrepreneurial Skills Acquisition amongst Students in Rural Universities of Sub-Saharan Africa's Developing Nations	2023	Omotosho Ademola Olumuyiwa, Kimanzi Matthew Kimweli, Motalenyane Alfred Modise	Describes the comparative factors that influence the acquisition of entrepreneurial skills among students at rural universities in Sub-Saharan African developing countries. This research contributes to the



				understanding of how these skills can be enhanced in such environments.
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Source: processed by researcher, 2025

A systematic review of the literature on factors influencing entrepreneurial skills in entrepreneurship education reveals a complex yet interrelated landscape. One of the most significant aspects that emerged was the importance of digital and technological competencies. In the modern era, where digital entrepreneurship increasingly dominates, the literature highlights that digital technologies are fundamentally changing the entrepreneurial landscape. This suggests an urgent need for relevant and adaptive entrepreneurship education. In particular, it was found that digital competencies play a crucial role in shaping entrepreneurial intentions, emphasizing the importance of developing these skills for future entrepreneurs. In addition, the research also highlighted the crucial role of self-efficacy and entrepreneurial mindset. Studies have consistently shown that self-efficacy is a strong predictor of entrepreneurial intention among university students. Interestingly, even in the face of crisis, self-efficacy remains a key driver. Furthermore, effective entrepreneurship education activities are shown to positively influence behavioral entrepreneurial mindset, which in turn mediates the relationship between education and entrepreneurial intention. This suggests that entrepreneurship education is not only about knowledge transfer, but also about the formation of a proactive mentality.

Environmental and socialization influences, including culture, education, and the presence of role models, are shown to strongly influence entrepreneurial intentions and skills. The environment in which individuals grow and learn plays a formative role. A strong entrepreneurial culture and entrepreneurship education provided from a young age are critical in shaping entrepreneurial intentions. In addition, exposure to entrepreneurial role models indirectly influences the development of entrepreneurial skills. This implies that educational institutions should design strategies that integrate informal learning from family and social environments with formal training. Other important enabling factors are support and innovation. Support from family and the ability to innovate, especially in an open innovation business model, significantly influence entrepreneurial intentions. This suggests that a supportive environment, both personal and structural, is vital for the development of entrepreneurial aspirations. Furthermore, in the context of social initiatives, it is evident that





high entrepreneurial skills are critical for mobilizing stakeholders and sustaining effectiveness in the scaling process, confirming the practical relevance of these skills beyond the traditional business domain.

Overall, to effectively develop entrepreneurial skills through education, a holistic and adaptive approach is required. This means entrepreneurship education should go beyond equipping individuals with technical knowledge and abilities. It must actively foster self-efficacy and an entrepreneurial mindset, harness the positive influence of culture and role models, and ensure a supportive environment conducive to innovation and risk-taking. Adaptation to specific contexts, such as challenges in rural universities in developing countries or rapid changes in the digital landscape, is also crucial to ensure the relevance and effectiveness of entrepreneurship education.

DISCUSSION

A systematic review of the literature on “Factors Influencing Entrepreneurial Skills on Entrepreneurship Education” reveals an essential convergence of findings, emphasizing that the development of entrepreneurial skills is a multidimensional process that relies heavily on the integration of key elements in the educational framework. The transformation of universities towards entrepreneurial institutions, as illustrated by Kanan et al. (2023), fundamentally highlights the urgency of creating innovative environments and adopting Total Quality Management (TQM) practices as catalysts in inculcating innovation skills—a fundamental entrepreneurial core competency. In line with the evolution of an entrepreneurial landscape that is increasingly dominated by digital aspects, research by Sitaridis & Kitsios (2024) and Bachmann et al. (2024) emphatically assert that digital competencies have become an indispensable entrepreneurial skill, requiring entrepreneurship education to proactively integrate this aspect to equip individuals with the ability to initiate action, collaborate effectively and make strategic decisions in the complex digital era. Furthermore, increased self-efficacy was shown to be an important predictor of entrepreneurial intentions, even amidst the impact of the post-pandemic crisis (Chahal et al., 2024), implying that the design of educational programs should be oriented towards fostering self-efficacy and preparing students for challenges through the development of resilience and robust adaptation. The importance of an entrepreneurial culture and entrepreneurship education starting at an early age is also emphasized by Porfírio et al. (2023), who showed how a conducive environment can formatively shape mindsets and critical skills such as analytical thinking and creativity. Cui & Bell (2022) specifically corroborate that entrepreneurship education activities positively influence behavioral entrepreneurial





mindset, which in turn directly mediates entrepreneurial intention and behavior, confirming the urgency that education should explicitly target the development of initiative, perseverance, and essential networking capabilities.

In addition, the findings from Olumuyiwa et al. (2023) critically highlight the need for curricula tailored to local and regional contexts, especially in rural environments, to ensure the acquisition of entrepreneurial skills that are not only relevant but also practical and applicable. Finally, the comprehensive research by Martins et al. (2023) systematically identified a series of key factors, including entrepreneurial skills knowledge, risk-taking ability, entrepreneurial innovation, self-efficacy, as well as substantial support from family, institutions and peers, as key determinants of entrepreneurial intentions. Therefore, it can be concluded that effective entrepreneurship education should be holistically designed, adaptive to rapidly evolving digital trends, focus on developing proactive mindsets and behavioral skills, and strategically create a robust and multifaceted ecosystem of support to equip individuals with the comprehensive entrepreneurial skills needed to effectively face challenges and proactively create opportunities in a dynamic future.

CONCLUSION

The development of entrepreneurial skills through education is a multifaceted process influenced by various key factors. Innovation, especially in the context of entrepreneurial universities that implement Total Quality Management, has proven essential in fostering the ability to innovate in individuals. Advances in digital technology have made digital competency an integral entrepreneurial skill, emphasizing the need for integration of digital aspects in the entrepreneurship education curriculum. Increased student self-efficacy is also an important predictor of entrepreneurial intentions, suggesting that educational programs should be designed to build self-assurance and capacity for adaptation to challenges. Furthermore, the establishment of an entrepreneurial culture and the influence of education from an early age are crucial in shaping entrepreneurial intentions and mindsets, including initiative, perseverance and networking skills. It is also important to consider the local context and specific challenges, such as in rural universities, in designing relevant and practical curricula. Comprehensively, factors such as entrepreneurial skills knowledge, risk-taking ability, innovativeness, self-efficacy, as well as support from family, institutions and peers, all contribute significantly to entrepreneurial intentions. Therefore, effective entrepreneurship education should be holistic, able to integrate innovation and digital competencies, focus on improving self-confidence and



behavioral mindset, and create a strong ecosystem of support to equip individuals with relevant and practical entrepreneurial skills to face the dynamics of the business world

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