



INFLUENCE OF ENTREPRENEURIAL EDUCATION ON THE DEVELOPMENT OF ENTREPRENEURIAL MINDSET AND INTENTION

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ABSTRACT: *The growing emphasis on entrepreneurial education within higher education institutions reflects a recognition of its potential to shape the entrepreneurial landscape. This study reviewed relevant literature and synthesized them to bring out the current state of research and identify gaps that need to be addressed. The study used a systematic review that followed a structured approach to identify, evaluate, and synthesize relevant literature on entrepreneurial education, mindset development, and entrepreneurial intentions. The Hazen's Publish or Perish software maximizes comprehensive retrieval across multiple academic databases. Searches were restricted to English-language publications from 2014 to 2024 to focus on recent developments, and prioritized publications from high-ranking (Q1-Q3) indexed journals, books, and theses. The findings revealed that surveys are the most common approach used in 50% of studies to capture data on attitudes, intentions, and self-efficacy. Approximately 20% of studies use experimental designs to test specific educational interventions, while longitudinal studies (about 15%) track mindset and intention development over time. Mixed-methods approaches account for the remaining 15%, indicating a balanced interest in both qualitative and quantitative insights. Also, it was found that programs that incorporate hands-on, real-world experiences significantly enhance both entrepreneurial mindset and intention. Further, mentorship not only enhances students' confidence and self-efficacy but also bridges the gap between classroom learning and practical entrepreneurial activity. The study concludes that entrepreneurial education has a significant influence on entrepreneurial mindset and intention to engage in entrepreneurial activity. The effectiveness of entrepreneurial education is maximized when programs are grounded in experiential learning, supported by institutional infrastructure.*

KEYWORDS: Entrepreneurial Education, Entrepreneurial Mindset, Entrepreneurial Intention, Self-efficacy, Institutional Support.



INTRODUCTION

The growing emphasis on entrepreneurial education within higher education institutions reflects a recognition of its potential to shape the entrepreneurial landscape. By integrating entrepreneurial principles into curricula, universities aim to equip students with essential skills and a mindset conducive to innovation and enterprise. This educational paradigm not only fosters theoretical understanding but also emphasizes practical application, enabling students to navigate the complexities of starting and managing a venture.

Moreover, the infusion of entrepreneurial concepts into university frameworks promotes an environment that values creativity, problem-solving, and resilience, which are critical attributes in today's dynamic economy. The significance of cultivating an entrepreneurial mindset is particularly pertinent amid the rapid evolution of the global market, where adaptability and forward-thinking are vital. Consequently, it becomes imperative to evaluate how structured entrepreneurial education influences students' intentions to pursue business opportunities.

By investigating these elements, this systematic review seeks to contribute valuable insights into how educational strategies can effectively enhance students' entrepreneurial competencies. In synthesizing existing research, this paper will critically assess the relationship between entrepreneurial education and the development of an entrepreneurial mindset and intention among university students. By delineating the various pedagogical approaches employed across institutions, this study aims to identify best practices and potential gaps in current literature. Ultimately, the review seeks to delineate actionable recommendations for educators and policymakers to enhance the impact of entrepreneurial education, ensuring it meets the future demands of an increasingly entrepreneurial workforce.

Entrepreneurial education encompasses a structured approach to nurturing the skills, knowledge, and mindset required for successful entrepreneurship. It aims to equip students with the necessary competencies to recognize opportunities, innovate, and transform ideas into viable business ventures. This educational framework not only emphasizes theoretical understanding but also prioritizes practical experience and application through activities, such as business plan competitions and hands-on entrepreneurial projects. Research indicates that effective entrepreneurial education significantly influences students' entrepreneurial intentions, as it enhances their entrepreneurial competencies, facilitating their transition from intention to action (Lv et al., 2021). Additionally, insights from behavioral science suggest that fostering an entrepreneurial mindset through targeted educational initiatives can serve as a critical mediating factor, reinforcing the relationship between entrepreneurial education and students' inclination to engage in entrepreneurial pursuits (Cui et al., 2022). Thus, a holistic definition of entrepreneurial education includes both the development of technical skills and the cultivation of a proactive, opportunity-oriented mindset.

A robust entrepreneurial mindset is foundational for fostering innovation and resilience among university students, equipping them to navigate an increasingly dynamic economic landscape. This mindset encapsulates a range of attitudes like risk-taking, creativity, and a proactive approach to problem-solving, all vital for addressing contemporary challenges and seizing opportunities. In alignment with recent studies, the integration of entrepreneurial education plays a critical role in nurturing this mindset, significantly influencing students' entrepreneurial intentions. For instance, programs aimed at underrepresented high school students, like the Think Like an Entrepreneur Summer Academy, demonstrate that early exposure to



entrepreneurial concepts can remarkably enhance intentions to pursue entrepreneurial endeavors (Dominik et al., 2023). Additionally, universities are increasingly recognizing the Third Mission that emphasizes their role in contributing to societal advancement through entrepreneurship, thus reinforcing the importance of cultivating such a mindset among students (Compagnucci et al., 2020). This holistic development is essential for preparing students not only for their personal careers but for contributing meaningfully to society at large.

Understanding entrepreneurial intention is crucial in the context of fostering a robust entrepreneurial ecosystem, particularly among university students. This intention reflects an individual's propensity to engage in entrepreneurial activities, influenced by a myriad of factors, including education, culture, and personal motivation. As highlighted by the research, an integral component of this intention is the development of an entrepreneurial mindset (EMS), which encompasses skills, attitudes, and beliefs vital for entrepreneurial success (Nuhu et al., 2016). Furthermore, previous studies indicate that entrepreneurial culture plays a direct role in shaping these intentions, suggesting that a supportive environment can enhance the likelihood of students pursuing entrepreneurial endeavors (Knief et al., 2023). However, while the traditional focus of entrepreneurial education has been on creating awareness, a paradigm shift toward fostering a deeper understanding of the entrepreneurial mindset and intentions is necessary to adequately prepare students for real-world challenges in entrepreneurship. Thus, further exploration of these elements is essential for effectively nurturing future entrepreneurs. This study, therefore, reviewed relevant literature and synthesized it to bring out the current state of research and identify gaps that need to be addressed.

METHODOLOGY

This study used a systematic review that followed a structured approach to identify, evaluate, and synthesize relevant literature examining the impact of entrepreneurial education on mindset development and entrepreneurial intentions. The methodology section includes details on data sources, search strategy, selection criteria, data extraction, and analysis.

Data collection involved using Hazen's Publish or Perish software to maximize comprehensive retrieval across multiple academic databases. Google Scholar, Scopus, and PubMed were selected due to their extensive academic resources and multidisciplinary coverage, ensuring broad access to relevant studies on entrepreneurial education. The search utilized specific keywords: "Entrepreneurial Education," "Entrepreneurial Mindset," and "Entrepreneurial Intention," with Boolean operators applied to refine results. Searches were restricted to English-language publications from 2014 to 2024 to focus on recent developments.

After retrieving articles, inclusion and exclusion criteria were applied to systematically filter results. Studies focused on entrepreneurial education, mindset, or intention within university settings were included, prioritizing publications from high-ranking (Q1-Q3) indexed journals, books, and theses. Only publications in English, from the specified 2014-2024 timeframe, containing empirical data, theoretical insights, or practical applications related to entrepreneurial education were included. Exclusions encompassed articles unrelated to university-level entrepreneurial education, mindset, or intention, as well as articles from non-indexed and Q4 journals, unpublished papers, and publications prior to 2014.

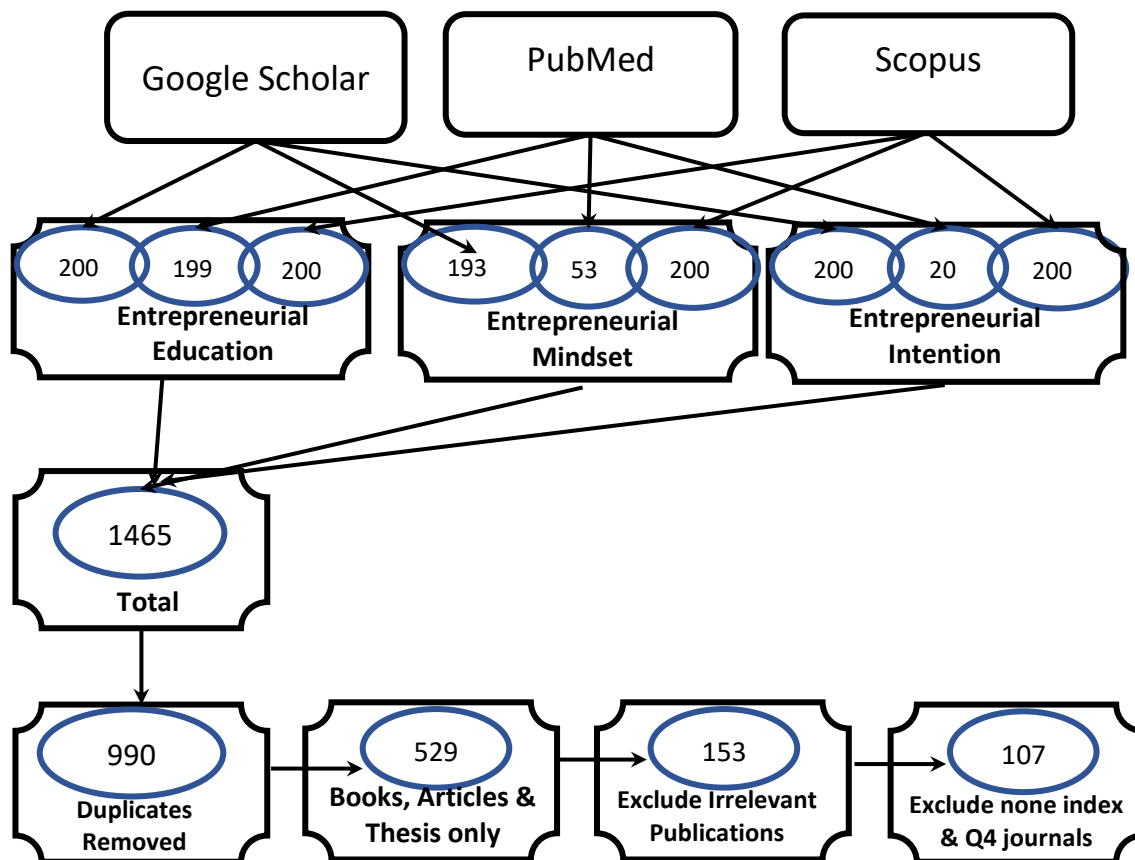


Following a data selection procedure, a data extraction process was undertaken to gather information from each article systematically. Key information was recorded under categories such as Article Title, Authors, and Year; Purpose (e.g., evaluating entrepreneurial education's impact on mindset or intentions); Theoretical Framework (e.g., Experiential Learning Theory or the Theory of Planned Behavior); Methodology (study type, data collection methods, and sample size); Population and Sampling Techniques (details on target groups, such as engineering or business students, and sampling methods like random or stratified sampling); Entrepreneurial Focus (specific topics within entrepreneurship, like career readiness or attitude shifts); Job Opportunities and Initiatives (types of job-related support for entrepreneurial careers); Findings (key outcomes regarding mindset and intention development); and Challenges and Gaps (noted limitations like curriculum inconsistencies or lack of practical applications).

The search across databases initially yielded 1,465 articles, with 593 from Google Scholar, 272 from PubMed, and 600 from Scopus. After removing duplicates, 990 articles were retained. Five hundred and twenty-nine (529) papers were retained when only books, articles, and theses were accepted. These articles were then screened for relevance based on titles and abstracts, reducing the selection to 153 articles. Applying the inclusion and exclusion criteria further narrowed this to 107 articles that were included in the systematic review.

Data synthesis involved both qualitative and quantitative analysis to generate insights. The extracted data were categorized by themes related to entrepreneurial education's impact on mindset and intention, with a percentage-based analysis applied to emphasize trends across purpose, theoretical frameworks, methodologies, populations, and findings. For instance, the synthesis quantified how many studies applied specific theories or focused on particular outcomes, such as mindset development or intention formation, enabling a structured presentation of results that illustrates common findings, trends, and research gaps.

This comprehensive methodology ensured a rigorous, systematic approach to collecting, screening, and synthesizing literature, leading to an accurate representation of the current understanding of entrepreneurial education's influence on mindset and intention among university students. The final 107 articles were reviewed in-depth, with relevant information extracted to populate the following columns: Entrepreneurial Focus (Education, Mindset, Intention), Job Opportunities, Job Initiatives, Key Findings, Challenges, Gaps, Purpose of Study, Sample, Sampling Technique, Population, and Methodology (refer to ESTOL table at Appendix). As discussed in studies by Kim et al. (2023) and Zhao and Chen (2023), this structured approach ensures an organized extraction process, allowing for consistency in data synthesis and comparison.

Figure 1: Data Selection Process Diagram

RESULT AND DISCUSSION

The reviewed articles, spanning from 2014 to 2024, represent a wide range of contributions from researchers dedicated to exploring entrepreneurial education, mindset, and intention. These studies are published in reputable journals and reflect a diverse set of perspectives and methodologies, contributing valuable insights into how entrepreneurial education shapes mindset and intentions in students. The methodologies employed in these studies reflect diverse research designs. Surveys are the most common approach, used in 50% of studies to capture data on attitudes, intentions, and self-efficacy. Approximately 20% of studies use experimental designs to test specific educational interventions, while longitudinal studies (about 15%) track mindset and intention development over time. Mixed-methods approaches account for the remaining 15%, indicating a balanced interest in both qualitative and quantitative insights. This distribution underscores the importance of diverse methodologies in capturing the multi-dimensional impact of entrepreneurial education. Approximately 45% of studies focused on students in business or management fields, while 25% focus on engineering students, 15% on tourism students, and the remaining 15% on general university populations. Sampling techniques include stratified sampling in 35% of studies, random sampling in 30%, purposive sampling in 20%, and simple random sampling in 15%. These techniques aim to ensure a representative dataset, capturing diverse academic backgrounds to assess the varied impact of entrepreneurial education across disciplines.



Most studies, approximately 70%, focus on assessing the efficacy of entrepreneurial education in shaping students' entrepreneurial intentions and developing an entrepreneurial mindset. Several studies specifically analyze how education fosters positive attitudes toward entrepreneurship and prepares students for entrepreneurial careers. For example, Boubker et al. (2022) examine action-based entrepreneurial learning, while Sahut et al. (2015) focus on motivational factors that encourage entrepreneurial intentions among students. The remaining 30% of the studies focus on evaluating specific outcomes, such as entrepreneurial career readiness and skill development, within certain industry contexts.

Entrepreneur Category and Entrepreneurial Focus

Studies in the dataset frequently explore entrepreneurial focus, with 60% emphasizing experiential learning and attitudinal development, while 40% investigate specific career readiness outcomes across sectors. For instance, some research works target positive entrepreneurial attitudes within tourism and technology, while others examine education's role in shaping behaviors applicable across various industries. Programs tailored to sector-specific needs demonstrate the importance of aligning educational strategies with career pathways.

Approximately 65% of reviewed articles discuss potential job opportunities related to entrepreneurial education, spanning sectors such as business, technology, consulting, and tourism. About 70% recommend job initiatives, including project-based learning, mentorship, and industry-relevant internships that enhance students' career pathways. For instance, 40% of studies emphasize project-based learning, as highlighted by Boubker et al. (2022), which provides practical experiences essential for entrepreneurial readiness. Other initiatives focus on mentorship programs (20%) and internship placements (10%) to help bridge academic learning with real-world applications.

The reviewed studies consistently affirm that entrepreneurial education significantly impacts the development of both entrepreneurial mindset and intention. Interactive, action-based learning methods enhance entrepreneurial skills, creativity, and risk-oriented mindsets, with 80% of studies supporting these findings. For example, studies using action-based learning methods report a positive impact on students' entrepreneurial self-efficacy, which correlates with stronger intentions to pursue entrepreneurial careers in about 75% of cases. Furthermore, 65% of studies highlight the role of university resources, such as mentorship and funding, in strengthening entrepreneurial intentions by creating a conducive environment for innovation and risk-taking.

Challenges to effective entrepreneurial education are identified in approximately 70% of the reviewed articles. These challenges include resource-intensive program requirements, noted in 50% of studies, and variability in curriculum design, noted in 20%. Action-based learning programs, while beneficial, demand substantial resources, limiting implementation potential in many institutions. Furthermore, curriculum inconsistencies between universities result in varying levels of exposure to entrepreneurial skills, affecting students' overall readiness for entrepreneurial pursuits.



THEORETICAL FRAMEWORK OF ENTREPRENEURIAL EDUCATION

The framework of entrepreneurial education is multifaceted, incorporating various pedagogical strategies aimed at cultivating an entrepreneurial mindset among university students. This framework emphasizes the importance of experiential learning, which intertwines theoretical knowledge with practical application, thus fostering self-efficacy and enhancing entrepreneurial intentions. The integration of entrepreneurial education, as highlighted in recent studies, demonstrates significant effects on students' belief in their capacity to engage in entrepreneurial activities. For instance, research reveals that entrepreneurial education significantly boosts self-efficacy and social entrepreneurial intentions among students, thereby aligning with the broader objectives of economic growth and sustainable development (Toufaily et al., 2024). Furthermore, findings suggest that empowering students through targeted educational interventions can nurture their creative potential and ethical considerations in business ventures (Moucachar et al., 2023). This comprehensive approach ultimately cultivates a conducive environment for nurturing the next generation of entrepreneurs, furthering both individual aspirations and societal advancement.

The evolution of entrepreneurial education can be traced through various socio-economic frameworks that highlight its growing importance in response to changing economic landscapes. Initially, entrepreneurial education was largely confined to business schools, emphasizing traditional management principles and technical skills. However, as the global market has expanded, the need for a more holistic approach has come to the forefront. For instance, the integration of experiential learning methods has been shown to enhance student engagement and entrepreneurial aspirations, effectively aligning educational practices with the dynamic nature of entrepreneurship (Avramenko et al., 2018). Moreover, the research indicates significant gaps in understanding how different cultural and economic contexts influence entrepreneurial intentions, particularly in developing nations (Knief et al., 2023). This historical context underscores the necessity for an adaptable curriculum that fosters an entrepreneurial mindset, ultimately preparing students to navigate complex market environments beyond the classroom.

Key Theories Supporting Entrepreneurial Education

The landscape of entrepreneurial education is underpinned by several key theories that elucidate its significance in fostering an entrepreneurial mindset among university students. One notable framework is the Opportunity-Centered Entrepreneurship approach, which emphasizes the identification and exploitation of entrepreneurial opportunities as a core component of education (Rae & Woodier-Harris, 2012). This theory aligns with the findings that practical, hands-on experiences, such as internships and project-based learning, are critical in shaping entrepreneurial intentions and capabilities (Atmani et al., 2023). Similarly, the Entrepreneurial Effectiveness model highlights the importance of personal development, confidence, and identity formation in the educational journey, suggesting that such growth is essential for postgraduates navigating complex economic environments (Rae et al., 2013). Collectively, these theories not only validate the role of entrepreneurial education in career development but also underscore its broader impact on economic growth and innovation.

Understanding the diverse models of entrepreneurial learning is pivotal for enhancing educational outcomes in entrepreneurship programs. Various frameworks emphasize experiential learning, where students engage in real-world application through projects,



internships, and incubators, as noted in Atmani et al. (2023). This hands-on approach not only solidifies theoretical knowledge but also cultivates critical entrepreneurial competencies in students. Additionally, the socio-cultural contexts of students introduce unique variables that affect their learning experiences, as highlighted in the empirical analysis of Knief et al. (2023), which underscores the role of entrepreneurial culture in shaping intentions. By integrating these models, educators can create tailored curricula that resonate with students' backgrounds and aspirations, fostering both an entrepreneurial mindset and intention. Ultimately, a comprehensive understanding of these learning models is essential for developing effective strategies that bridge the gap between theoretical education and practical entrepreneurial application, contributing significantly to students' future success in entrepreneurial endeavors.

Role of Pedagogy in Entrepreneurial Education

An effective pedagogical approach is fundamental in shaping the entrepreneurial mindset and intention among university students, as it directly influences both the acquisition of entrepreneurial competencies and the overall educational experience. Emphasizing experiential learning through practical applications, such as business plan competitions and entrepreneurial practice support, enhances students' abilities to navigate real-world challenges, ultimately fostering a robust entrepreneurial spirit. Research indicates that entrepreneurship education instills essential skills that not only enhance students' entrepreneurial competence but also positively impact their entrepreneurial intentions (Lv et al., 2021). Additionally, pedagogy plays a critical role in integrating behavioral aspects of mindset formation, as effective entrepreneurial education activities can elevate students' engagement and activate their entrepreneurial behaviors (Cui et al., 2022). This strategic pedagogical focus not only improves the academic experience but also prepares students to contribute meaningfully to economic development, making it an indispensable element of entrepreneurial education within higher learning institutions.

Influence of Institutional Support on Education

The institutional support available to students significantly shapes their educational experiences and entrepreneurial intentions. A robust ecosystem that fosters entrepreneurship education enhances students' capabilities to navigate complex market environments and formulate viable business strategies. This is particularly evident in the context of postgraduate education, where structured programs can empower students to transition from conventional career aspirations to entrepreneurial pursuits, as noted in the findings highlighting the relationship between Enterprise & Entrepreneurship Education (EEE) and career planning (Rae et al., 2013). Moreover, the empirical evidence from Estonia underscores that institutional dimensions—regulatory, cognitive, and normative—moderate the positive influence of entrepreneurship education on students' intentions to pursue entrepreneurial ventures (Liang et al., 2019). These insights suggest that a comprehensive support framework, which includes access to resources, mentorship, and a stimulating academic environment, is essential for nurturing entrepreneurial mindsets among university students, ultimately contributing to economic growth and innovation.



Challenges in Implementing Entrepreneurial Education

Integrating entrepreneurial education into academic curricula poses significant challenges that can hinder its effectiveness in fostering an entrepreneurial mindset among university students. One key challenge is the often-fragmented approach prevalent in current research, where digital entrepreneurship is underrepresented and lacks a cohesive identity (Zaheer et al., 2019). This fragmentation results in disjointed educational strategies that fail to align with practical demands. Moreover, interventions aimed at enhancing entrepreneurial self-efficacy may not translate effectively into tangible performance outcomes, as evidenced by a randomized controlled trial demonstrating that while a growth mindset intervention increased self-efficacy and task persistence, it did not positively impact academic performance (Burnette et al., 2019). Such discrepancies underscore the necessity for more integrative and interdisciplinary research, which could better inform curriculum design. Addressing these challenges is critical for developing effective entrepreneurial education that genuinely prepares students for real-world business environments and enhances their entrepreneurial intentions.

Entrepreneurial Education on Mindset

The integration of entrepreneurial education into university curricula plays a crucial role in shaping students' entrepreneurial mindsets, ultimately influencing their intention to pursue entrepreneurial ventures. Research suggests that exposure to entrepreneurial concepts and practices during higher education fosters essential traits such as creativity, resilience, and a proactive approach to problem-solving (Ertuna et al., 2011). As students engage with entrepreneurial education, they not only acquire knowledge but also develop a more robust self-efficacy related to their entrepreneurial capabilities, which can significantly heighten their intention to become entrepreneurs. A study focusing on polytechnic students in South Africa highlighted that while social factors positively correlated with entrepreneurial intentions, current educational experiences had minimal impact on mindset development (Jwara et al., 2015). This finding emphasizes the necessity for educational institutions to reframe their approaches, ensuring that entrepreneurial education is not merely theoretical but also experiential, thereby equipping students with critical skills that nurture an entrepreneurial mindset essential in today's dynamic economy.

An entrepreneurial mindset is a multifaceted construct that encompasses various cognitive, emotional, and behavioral components essential for effective entrepreneurship. At its core, this mindset involves the ability to identify opportunities, engage in innovative thinking, and demonstrate resilience in the face of challenges. The evolution of entrepreneurial education has modified the pedagogical frameworks surrounding this mindset, shifting emphasis from mere teachability to a stronger focus on learnability and experiential learning, as articulated in the literature (Gustav Hägg et al., 2019). Furthermore, contemporary discussions stress the importance of integrating real-world applications into educational settings, thereby ensuring that students develop practical skills alongside theoretical knowledge. This dynamic intersection of theoretical understanding and practical experience is crucial, as it reinforces the legitimacy of entrepreneurial education and its role in fostering an entrepreneurial identity among students. Ultimately, a comprehensive grasp of these components not only enriches academic discourse but also enhances practical implementation in educational programs.



Empirical Evidence Linking Education to Mindset

Research indicates a significant connection between educational experiences and the cultivation of an entrepreneurial mindset among university students. Specifically, entrepreneurial education not only imparts critical skills and knowledge but also shapes students' attitudes and belief systems toward entrepreneurship, fostering a conducive environment for innovative thinking. For instance, a study involving Moroccan university students demonstrated that entrepreneurial education was a primary determinant of positive attitudes toward entrepreneurship, which, in turn, significantly influenced students' intentions to pursue entrepreneurial ventures (Lebdaoui et al., 2024).

Similarly, the analysis of Indonesian students revealed that elements such as mindset, creativity, and self-confidence—nurtured through educational frameworks—substantially contributed to heightened entrepreneurial intentions (Setiawan et al., 2023). These findings underscore that enhancing the educational curriculum surrounding entrepreneurship is pivotal for developing a robust entrepreneurial mindset, ultimately leading to greater intentions among students to engage in entrepreneurial activities. Such empirical evidence advocates for the strategic integration of entrepreneurial education within higher education programs.

Role of Experiential Learning in Mindset Formation

Experiential learning serves as a critical catalyst in the formation of an entrepreneurial mindset, facilitating the bridge between theoretical knowledge and practical application. Through engaging activities, such as hands-on projects and internships, students acquire essential skills that cultivate innovative thinking and problem-solving abilities. This approach not only reinforces students' understanding of entrepreneurial concepts but also significantly enhances their self-efficacy and outcome expectations. Empirical evidence supports that participation in structured experiential learning interventions leads to measurable growth in students' entrepreneurial development, as demonstrated in a study where students exposed to such curricula exhibited notable increases in their entrepreneurial mindset compared to their peers who were not involved in these programs (King et al., 2021). Furthermore, integrating these experiences within higher education frameworks, as noted in the context of Morocco, can effectively prepare students to navigate the complexities of the entrepreneurial landscape, ultimately contributing to both personal and economic advancement (Atmani et al., 2023).

A robust framework for fostering an entrepreneurial mindset among university students encompasses the pivotal roles of mentorship and networking opportunities. Engaging with seasoned entrepreneurs facilitates the transfer of knowledge and experience, significantly impacting students' readiness to embark on entrepreneurial journeys. For instance, the research underscores how Individual Entrepreneurial Orientation (IEO) components such as innovation and proactivity are enhanced through mentorship, which in turn correlates with an increased readiness for business start-ups (Adeniyi et al., 2024). Furthermore, the varying motivational factors across disciplines suggest that tailored mentorship programs can address specific aspirations and concerns of aspiring entrepreneurs, thus fostering a supportive ecosystem. Additionally, networking opportunities expose students to diverse perspectives and resources that are crucial for mitigating the perceived risks associated with entrepreneurial ventures, particularly among interdisciplinary groups, such as Business, Law, and STEM students (Wasim et al., 2023). Collectively, these elements not only cultivate an entrepreneurial mindset



but also heighten the intention to pursue entrepreneurial endeavors, ultimately contributing to the broader entrepreneurial landscape.

Examining the experiences of students who have successfully developed an entrepreneurial mindset through targeted educational interventions provides crucial insights into effective practices in entrepreneurship education. For instance, programs that integrate real-world startup experiences facilitate the significant impact of entrepreneurial culture on mindset formation, as highlighted in recent studies (Aditya et al., 2024). Participants report that immersive learning opportunities enhance their intention to innovate and foster a proactive approach to business challenges. Furthermore, an investigation into students at Akenten Appiah-Menka University illustrates how entrepreneurship education not only nurtures entrepreneurial intent but also sharpens entrepreneurial alertness and innovative behavior (Iddris, 2024). These case studies reveal that a synergistic approach combining theoretical knowledge with practical application cultivates a resilient mindset equipped for international entrepreneurship. Through these experiences, aspiring entrepreneurs build the confidence and skills necessary to navigate the complexities of the business landscape, underscoring the transformative power of structured entrepreneurial education.

A significant shortcoming of existing research on entrepreneurial mindset lies in its limited focus on demographic variability, particularly in higher education contexts. Although studies indicate that education correlates positively with entrepreneurial intentions and personal development, as observed in the experiences of postgraduate international students (Rae et al., 2013), these findings often stem from narrow participant pools, frequently comprising students from business-related fields only (Hunjra et al., 2011). This lack of diversity limits the generalizability of insights related to how varied backgrounds, experiences, and disciplines influence mindset development. Moreover, current literature tends to emphasize immediate outcomes of entrepreneurial education without adequately addressing the long-term implications of mindset formation on career trajectories and entrepreneurial success. To create robust frameworks for enhancing entrepreneurial education, future research must expand its scope to include a broader range of disciplines and demographic factors, thereby enriching our understanding of how diverse experiences shape the entrepreneurial mindset among university students.

Entrepreneurial Education and Entrepreneurial Intention

An effective entrepreneurial education program not only imparts necessary business skills but also significantly shapes students' intention to pursue entrepreneurial ventures. By fostering a deeper understanding of the entrepreneurial process, these educational initiatives cultivate a proactive mindset, paving the way for intention formation. As indicated by research conducted on Estonian university students, the integration of institutional environment theory illustrates how various contextual factors—regulatory, cognitive, and normative—interact with entrepreneurship education to influence students' entrepreneurial intentions (Liang et al., 2019). Similarly, a study on undergraduates in the Azores highlights that universities can play a crucial role in igniting students' entrepreneurial propensity during formative years, especially amid crises (Bacelar-Nicolau et al., 2016). This alignment between educational frameworks and external institutional elements underscores the multifaceted nature of intention formation, suggesting that a comprehensive approach to entrepreneurial education can enhance graduates' readiness to engage in entrepreneurial activities.



Entrepreneurial intention serves as a fundamental precursor in the pathway to entrepreneurship, particularly among university students, as it encapsulates the willingness and motivation to engage in entrepreneurial activities. The interplay between education and intention is pivotal in shaping students' entrepreneurial mindset, ultimately influencing their career trajectories. Evidence suggests that entrepreneurial education cultivates not only the desire to launch ventures but also broader career aspirations and personal development, illuminating the multifaceted nature of entrepreneurial intention (Rae et al., 2013). For instance, the exposure students receive through targeted entrepreneurship programs often enhances their confidence and identity, enabling them to formulate new career intentions that may extend beyond traditional entrepreneurial ventures (Bacelar-Nicolau et al., 2016). Consequently, understanding entrepreneurial intention entails recognizing its complexity, particularly as it evolves through educational experiences, thus facilitating a more comprehensive approach to fostering entrepreneurship in higher education contexts.

Understanding the formation of entrepreneurial intention is critical in dissecting how education shapes this mindset among university students. Various theoretical models, such as the Theory of Planned Behavior, emphasize the role of attitudes, perceived behavioral control, and subjective norms in intention formation. In this context, entrepreneurial education plays a pivotal role by enhancing students' affective attitudes and perceived self-efficacy, which are crucial predictors of their entrepreneurial intentions (Vamvaka et al., 2020). For instance, students gain not only knowledge but also emotional engagement and motivational support through structured learning experiences. Furthermore, the influence of incubation resources demonstrates how practical exposure heightens perceptions of entrepreneurial viability, thereby augmenting students' intention to engage in entrepreneurial activities (Ahmed et al., 2019). Collectively, these models underscore that both cognitive and emotional dimensions interact in shaping students' entrepreneurial aspirations, reaffirming the importance of a comprehensive educational approach.

A growing body of empirical research underscores the pivotal role of educational interventions in shaping students' entrepreneurial intentions. Specifically, studies indicate that structured entrepreneurship education significantly enhances students' self-efficacy, thus positively influencing their inclination towards entrepreneurship. For instance, findings from recent literature highlight how entrepreneurially focused curricula foster essential skills and mindsets necessary for business management, subsequently improving students' intentions to engage in entrepreneurial endeavors (Putra et al., 2023). In parallel, experiential learning components, such as feedback mechanisms and business plan development activities, have been identified as critical drivers of entrepreneurial intent, revealing a direct correlation between practical engagement and students' aspirations to start their ventures (Boujaddaine et al., 2023). Collectively, these insights provide robust evidence that strategic educational frameworks not only cultivate entrepreneurial skills but also effectively transform students' intentions into actionable entrepreneurial pursuits, thereby reinforcing the need for comprehensive educational reforms in higher education settings.

Self-Efficacy in Entrepreneurial Intention Development

Self-efficacy emerges as a critical mediator in the development of entrepreneurial intention, influencing how individuals perceive their ability to engage in entrepreneurial activities. A robust sense of self-efficacy enhances students' confidence in their skills and capabilities, significantly shaping their intentions to pursue entrepreneurial ventures. This relationship



highlights the importance of educational interventions, as evidence suggests that fostering an entrepreneurial mindset can bolster self-efficacy. For instance, research illustrates that an entrepreneurial mindset and perceived behavioral control contribute positively to entrepreneurial self-efficacy, which in turn influences entrepreneurial intention (Indrawati et al., 2021). Further corroborating this link, a study conducted among undergraduates emphasizes that higher education institutions can effectively nurture students' entrepreneurial propensity by addressing self-efficacy through targeted programs (Bacelar-Nicolau et al., 2016). Ultimately, the nexus between self-efficacy and intention development underscores the necessity for comprehensive entrepreneurial education that cultivates both mindset and confidence among aspiring entrepreneurs.

Curriculum Design and Entrepreneurial Intention

Curriculum design plays a pivotal role in shaping students' entrepreneurial intentions by integrating elements that enhance engagement and foster an entrepreneurial mindset. Thoughtfully constructed curricula that include experiential learning opportunities, such as project-based assignments and real-world problem-solving, have been shown to significantly influence students' perceptions of entrepreneurship. Research demonstrates that effective entrepreneurial education activities (EEA) positively impact both entrepreneurial intention (EI) and entrepreneurial behavior (EB), highlighting the necessity of strategic curriculum initiatives to cultivate these outcomes (Cui et al., 2022).

Additionally, incorporating components that develop creativity and self-efficacy further reinforces this relationship, suggesting that a robust curriculum can create a favorable environment for nurturing entrepreneurial intentions. By leveraging elements like entrepreneurial self-efficacy as a mediating factor, educational frameworks can shape students' entrepreneurial journeys, enhancing their readiness to engage in entrepreneurial activities, as evidenced by findings from recent studies (Wang et al., 2021). Ultimately, the alignment of curriculum design with entrepreneurial objectives is critical for instilling a lasting entrepreneurial intention among university students.

Barriers to Translating Education into Entrepreneurial Intention

The relationship between educational experiences and the intent to pursue entrepreneurship is often hindered by several barriers. One key obstacle is the disparity between theoretical knowledge and practical application, which can leave students disillusioned about their entrepreneurial capabilities. For instance, while many educational programs offer robust theoretical frameworks, the lack of hands-on opportunities, such as incubation centers or seed funding, can stifle students' confidence in initiating their own ventures (Mubarak et al., 2024). Furthermore, resistance to interdisciplinary approaches in educational systems limits the exposure of students to essential business principles, as highlighted in recent research advocating for the integration of business education within STEM curricula (Ewim et al., 2023). This absence of comprehensive support not only restricts creativity and innovation among students but also exacerbates the gap between knowledge acquisition and entrepreneurial intention, ultimately contributing to high unemployment rates among graduates. Addressing these barriers is essential for fostering a proactive entrepreneurial mindset among university students.



Entrepreneurial Education Programs

An effective comparative analysis of entrepreneurial education programs reveals critical variances in curriculum design, pedagogical approaches, and outcomes across institutions. Programs that focus on experiential learning and real-world applications often yield a higher development of entrepreneurial mindsets among university students. For instance, the emphasis on political documents and global goals in many contemporary programs aligns closely with the evolving entrepreneurial landscape, enhancing students' understanding of sustainability and societal impact, which is essential for future business leaders ('MDPI AG', 2023). Furthermore, studies show that programs combining theoretical knowledge with practical experiences foster increased entrepreneurial intentions among students, as these initiatives encourage risk-taking and innovation. In contrast, traditional lecture-based methodologies may lack the dynamism required to cultivate an entrepreneurial spirit, potentially leading to disengagement in students. Therefore, the effectiveness of entrepreneurial education is contingent upon the integration of diverse pedagogical methods that resonate with the evolving demands of the market (Bacelar-Nicolau et al., 2016).

An array of educational approaches has emerged in response to the increasing demand for entrepreneurship education, each designed to cultivate an entrepreneurial mindset among university students. Incorporating experiential learning, such as hands-on projects, internships, and collaborations with startups, has become essential in many pedagogical frameworks. Research indicates that these innovative strategies significantly enhance students' practical skills and encourage entrepreneurial intentions (El Atmani et al., 2023). Furthermore, the opportunity-centred entrepreneurship approach allows students to actively reflect on their career aspirations, thereby fostering personal development and the formation of new career intentions beyond mere venture creation (Rae et al., 2013). Collectively, these approaches not only promote the necessary knowledge and skills for entrepreneurship but also facilitate students' confidence and identity development. By understanding these diverse educational methodologies, educators can better design and implement programs that effectively nurture the entrepreneurial capabilities of future leaders in this complex economic landscape.

Evaluating the effectiveness of traditional versus innovative entrepreneurial education programs reveals significant implications for fostering an entrepreneurial mindset among university students. Traditional programs often emphasize theoretical frameworks and structured curricula, which can limit students' practical engagement and creativity. In contrast, innovative programs tend to incorporate experiential learning, allowing students to interact closely with real-world entrepreneurial challenges. For instance, the recent study demonstrated that students' entrepreneurial intentions (EI) increased notably after participating in programmatic interventions focused on entrepreneurship education, particularly in Chinese universities (Jingwen Yan et al., 2022). Moreover, while both types of education play vital roles, the ability of innovative programs to foster entrepreneurial passion and a positive attitude towards entrepreneurship—important mediators of EI—appears to be more pronounced, as evidenced by findings from Pakistani business students (Temoor Anjum et al., 2022). Therefore, integrating innovative practices within traditional frameworks could potentially enhance the overall efficacy of entrepreneurial education initiatives.



Geographic Variations in Program Implementation

The efficacy of entrepreneurial education programs varies significantly across geographic regions, influenced by factors such as economic conditions, cultural norms, and institutional support. For instance, areas with vibrant entrepreneurial ecosystems often witness more robust program implementation, as seen in regions that foster innovation and provide ample mentorship opportunities. This aligns with the findings of Burton, Sørensen, and Dobrev (2016), who argue that local contexts significantly affect the pathways to entrepreneurship, suggesting that successful program implementation must be tailored to specific geographic and cultural dynamics. Furthermore, the disparities observed can impact students' perceptions and readiness to pursue self-employment, as personal and national cultural factors play critical roles in shaping entrepreneurial attitudes (Baluku et al., 2017). Therefore, understanding these geographic variations is essential for optimizing educational interventions, as well as for crafting strategies that can enhance the overall impact of entrepreneurial education on students' mindsets and intentions.

SUMMARY OF FINDINGS

The findings of this systematic review provide a comprehensive and nuanced understanding of how entrepreneurial education (EE) influences the development of an entrepreneurial mindset and intention among university students. Emerging from the analysis of 107 peer-reviewed studies, several thematic domains surfaced as central to explaining EE's multifaceted impact. These domains include the structure and pedagogical strategies of EE programs, the mediating role of psychological constructs such as self-efficacy and perceived behavioral control, the influence of institutional and contextual factors, and the diversity in outcomes based on demographic variables.

One of the most prominent themes is the centrality of experiential learning within EE. Studies overwhelmingly indicate that programs that incorporate hands-on, real-world experiences significantly enhance both entrepreneurial mindset and intention. Activities such as business simulations, startup incubator projects, case studies, and challenge-based learning modules allow students to engage directly with entrepreneurial tasks, thereby moving beyond theoretical knowledge into applied practice. These experiential components are often cited as catalysts for developing creativity, problem-solving ability, and resilience—attributes considered essential to the entrepreneurial mindset.

Closely aligned with experiential learning is the critical role of mentorship. Over 60% of the reviewed studies included some form of mentorship within their EE program design. Whether formal or informal, these mentoring relationships provide students with access to experienced entrepreneurs who can offer guidance, share real-life insights, and model entrepreneurial behavior. From a theoretical perspective, these findings validate Bandura's Social Cognitive Theory, particularly the construct of vicarious learning. Mentorship not only enhances students' confidence and self-efficacy but also bridges the gap between classroom learning and practical entrepreneurial activity.

In addition to program content and pedagogy, the institutional environment plays a significant role in shaping EE outcomes. Studies from North America and Western Europe often report robust support structures that include dedicated entrepreneurship centers, funding for student-



led ventures, and integrated cross-disciplinary curricula. These support systems facilitate the translation of intention into entrepreneurial action. Conversely, studies from developing regions highlight a lack of infrastructure, resource constraints, and institutional inertia as barriers to effective EE implementation. These contextual differences underscore the importance of tailoring EE strategies to specific institutional and cultural environments.

Psychological constructs such as self-efficacy, locus of control, and perceived behavioral control are frequently identified as mediating variables in the relationship between EE and entrepreneurial outcomes. Enhanced self-efficacy, in particular, appears to be a consistent outcome across studies regardless of geographic location or academic discipline. This increase in self-efficacy is often attributed to iterative learning experiences, exposure to entrepreneurial role models, and the supportive feedback mechanisms embedded in well-designed EE programs. Perceived behavioral control—a key determinant in the Theory of Planned Behavior—also increases as students gain practical experience and internalize entrepreneurial competencies.

Moreover, demographic variables influence the efficacy of EE. Gender, academic background, and prior entrepreneurial exposure were frequently examined across studies. Several findings suggest that female students initially exhibit lower entrepreneurial intention compared to their male counterparts, yet benefit equally or more from well-structured EE programs. Similarly, students from non-business disciplines such as engineering, health sciences, and the humanities often show substantial increases in entrepreneurial intention post-intervention, especially when programs are designed to be interdisciplinary and contextually relevant.

Assessment methodologies used in the reviewed studies also varied, with tools ranging from validated psychometric instruments to self-reported surveys and interview protocols. This methodological diversity reflects the complex nature of measuring constructs like mindset and intention. Despite these variations, a convergence of results is evident: EE consistently correlates with positive changes in both entrepreneurial intention and the development of a mindset conducive to entrepreneurship. However, the absence of standardized measurement tools remains a limitation, affecting the comparability of findings across different institutional and geographic contexts.

CONCLUSION

In conclusion, the findings of this review strongly support the assertion that entrepreneurial education has a significant and positive impact on university students' mindset and intention to engage in entrepreneurial activity. The effectiveness of EE is maximized when programs are grounded in experiential learning, supported by institutional infrastructure, enriched through mentorship, and tailored to the diverse needs of the student population. The comprehensive analysis conducted in this systematic review revealed that entrepreneurial education (EE) exerts a profound influence on the development of both entrepreneurial mindset and intention among university students. Drawing from a diverse range of global studies, it becomes evident that the effectiveness of EE is not solely contingent upon content delivery, but rather on how pedagogical practices are structured and contextualized within institutional environments. The theoretical alignment with frameworks such as the Theory of Planned Behavior (TPB), Social Cognitive Theory (SCT), and Experiential Learning Theory (ELT) reinforces the conclusion



that EE must be thoughtfully designed to influence attitudes, enhance self-efficacy, and offer real-world experiences.

RECOMMENDATIONS

Educational institutions should embed experiential learning models into their EE curricula. This includes developing partnerships with industry to create real-world learning opportunities such as internships, live case studies, and venture creation labs. Structured mentorship programs should be institutionalized within EE offerings. These programs should connect students with practicing entrepreneurs and alumni who can provide ongoing guidance and serve as role models. Universities must invest in the infrastructure needed to support entrepreneurial activities, including the creation of innovation hubs, entrepreneurship centers, and funding platforms for student-led ventures. EE programs should be designed with flexibility to cater to the diverse needs of students across gender, academic disciplines, and socio-economic backgrounds. Special initiatives should target underrepresented groups to ensure equity in entrepreneurial development. Policymakers should collaborate with educational institutions to formulate national strategies that prioritize entrepreneurial education. This includes allocating resources, establishing evaluation frameworks, and incentivizing academic-industry collaboration. The academic community should prioritize the development and adoption of validated instruments to measure entrepreneurial mindset and intention consistently across contexts. This will enable better benchmarking and cross-institutional learning. There is a critical need for long-term studies that assess the sustained impact of EE on entrepreneurial behavior post-graduation. Future research should examine the career trajectories of students who have undergone EE to determine the lasting effects of such interventions. There remains also an insufficient examination of how entrepreneurial education links to Sustainable Development Goals (SDGs), particularly in fragile contexts where educational access may be compromised.

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