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The Role of Entrepreneurship Education in Developing Students Entrepreneurial Intentions Through Self-Efficacy

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Abstract: This study explores the role of entrepreneurship education in shaping students' entrepreneurial intentions through the development of self-efficacy. Entrepreneurship education serves as a bridge between the academic environment and the professional world, while self-efficacy acts as a psychological factor that influences individuals' motivation to pursue entrepreneurial paths. This study employed an integrative literature review supported by bibliometric analysis to synthesize previous empirical findings on entrepreneurship education, self-efficacy, and entrepreneurial intention.. Relevant journal articles were systematically identified through academic databases such as Google Scholar and Scopus, focusing on studies published in the past five years that examine the relationship between entrepreneurship education, self-efficacy, and entrepreneurial intention. The review process included stages of topic refinement, keyword-based search, selection based on inclusion criteria, and thematic analysis. The findings indicate that self-efficacy is closely associated with students' entrepreneurial intentions through five key dimensions: (1) belief in one's ability to design and manage a business, (2) readiness to face challenges and take initiative, (3) alignment with or resistance to prevailing social norms related to entrepreneurship, (4) resilience in overcoming obstacles, and (5) confidence in making entrepreneurial decisions. These findings suggest that entrepreneurship education, when combined with self-efficacy development, can foster stronger interest and preparedness among students to engage in entrepreneurial endeavors. The study underscores the importance of designing entrepreneurship programs that integrate both cognitive and psychological dimensions to promote entrepreneurial readiness.

Keywords: Entrepreneurship Education, Entrepreneurial Intention, Self-Efficacy.

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INTRODUCTION

Developing the entrepreneurial sector for its citizens is one way that many nations promote independent principles. According to H. M. K. Hassan (2020) entrepreneurship is thought to be one of the ways to solve the issues of poverty, unemployment, and limited employment that practically all nations, particularly emerging nations, confront.

Entrepreneurship is an intangible culture that can produce a concrete culture, according to Rifqiansyah & Wijaya (2025). According to Schumpeter, entrepreneurs are reformers (Sari et al. 2021), meaning that an innovator is only someone who has the ability to create changes. Furthermore, Zimmerer clarified that an entrepreneur is a person who can establish a unique business, look for new opportunities with varying risks in unpredictable circumstances to generate income, and develop with various strategies in creating business opportunities by combining various resources to produce maximum resources (Sari et al. 2021).

An individual's drive that motivates them to do action is known as their intention. According to Yulia et al. (2021), entrepreneurial aspirations are seen to be the primary predictors of an individual's entrepreneurial conduct. Those that intend to launch a business are typically more equipped to handle obstacles and exhibit superior business growth compared to those who do not (Padmalia, 2021).

By providing students with entrepreneurial information, skills, and real-world experiences, entrepreneurship education plays a critical role in encouraging students' entrepreneurial goals. Prior research has repeatedly shown that entrepreneurial intention and entrepreneurship education are positively correlated (Kardila, 2022). In addition to its direct impact, entrepreneurship education fosters the growth of entrepreneurial self-efficacy by offering students opportunities for practical learning that boost their self-confidence. Since people who are confident in their capacity to carry out entrepreneurial tasks are more inclined to pursue entrepreneurial professions, entrepreneurial self-efficacy has been identified as one of the greatest psychological determinants of entrepreneurial intention (Metty, 2023). These results imply that students' entrepreneurial inclinations are strengthened by entrepreneurship education through the crucial process of entrepreneurial self-efficacy.

The relationship between entrepreneurship education, entrepreneurial self-efficacy, and entrepreneurial intention is explained theoretically by the Theory of Planned Behavior (TPB) and Self-Efficacy Theory. According to Ajzen (1991), entrepreneurial intention is influenced by attitudes toward entrepreneurship, subjective standards, and perceived behavioral control. Entrepreneurial self-efficacy is a measure of perceived behavioral control because pupils who are confident in their entrepreneurial abilities are more likely to have stronger entrepreneurial goals.

Additionally Bandura (1977) believes that mastery experiences, vicarious learning, verbal persuasion, and physiological or emotional states are the four main ways that self-efficacy develops. Through project-based learning, business simulations, mentoring, internships, and hands-on entrepreneurial activities, entrepreneurship education offers these resources to help students develop their entrepreneurial confidence. As a result, entrepreneurship education increases entrepreneurial self-efficacy, which in turn encourages entrepreneurial intention.

The links between entrepreneurship education, entrepreneurial self-efficacy, and entrepreneurial intention have been the subject of several empirical research; nevertheless, the evidence that is now available is still dispersed and mainly restricted to certain empirical scenarios. Using survey-based research methodologies, the majority of studies have either examined the direct impact of entrepreneurship education on entrepreneurial intention or the mediation function of self-efficacy. As a result, there is still a dearth of integrative evidence that uses bibliometric analysis to map the intellectual structure and research trends in this discipline while methodically synthesizing these findings. The current study fills this gap by synthesizing recent empirical data, identifying research trends, and elucidating the function of entrepreneurial self-efficacy as a psychological mechanism connecting entrepreneurship education and entrepreneurial intention through an integrative literature review bolstered by bibliometric analysis.

METHOD

Research Design

In order to thoroughly investigate the connection between entrepreneurship education, self-efficacy, and entrepreneurial intention, this study used an integrated literature review (ILR)

backed by bibliometric analysis. An integrative literature review enables researchers to synthesize findings from empirical studies with diverse research designs, thereby generating a broader understanding of a particular phenomenon and identifying theoretical developments, research gaps, and future research directions (Snyder, 2019; Whittemore & Knafl, 2005).

Unlike traditional narrative reviews, the integrative review follows a structured and transparent process for identifying, evaluating, and synthesizing relevant evidence while allowing the inclusion of both quantitative and qualitative studies. This approach was considered appropriate because the present study aims not only to summarize previous findings but also to critically interpret the development of entrepreneurship education research from multiple perspectives.

Using VOSviewer and Publish or Perish, bibliometric analysis was used to supplement the literature synthesis. Bibliometric analysis reveals the intellectual structure and development of a research field by providing quantitative data about publishing trends, citation impact, keyword co-occurrence, and collaboration patterns (van Eck & Waltman, 2010). In the meantime, Google Scholar bibliographic metadata and citation metrics, such as total citations, average citations, and the h-index of pertinent publications, were retrieved using Publish or Perish. A more thorough grasp of the state of entrepreneurship education research is made possible by the merger of qualitative literature synthesis and quantitative bibliometric mapping, which also makes it easier to identify emerging topics and future research opportunities.

Seard Strategy

To find research on the connection between entrepreneurship education, self-efficacy, and entrepreneurial intention, a methodical literature search was carried out. A structured search strategy was developed to ensure that the retrieved studies were relevant, comprehensive, and consistent with the research objectives. The search process followed established guidelines for systematic literature reviews to enhance transparency and reproducibility (Page et al., 2021; Snyder, 2019).

Google Scholar was selected as the primary source of literature because of its broad coverage of peer-reviewed journal articles, conference proceedings, books, and other scholarly publications across multiple disciplines. Bibliographic records were retrieved using Publish or Perish software, which facilitates systematic extraction of publication metadata and citation information from Google Scholar (Harzing, 2007). The retrieved records were exported in RIS format to support the subsequent bibliometric analysis. The search employed the Boolean search query: **("entrepreneurship education") AND ("entrepreneurial intention") AND ("self-efficacy")**

To capture the most recent advancements in entrepreneurship education research, the search was restricted to articles published between 2020 and 2025. Only English-language, peer-reviewed journal articles, and full-text publications were considered eligible for inclusion. Conference abstracts, editorials, book reviews, duplicated records, and studies that were not directly related to the research variables were excluded from further analysis.

The retrieved records were then prepared for the screening process by exporting bibliographic information, including authors, publication year, title, abstract, keywords, source title, and citation metrics. These records subsequently underwent a systematic selection process following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guideline before being analyzed using bibliometric mapping techniques.

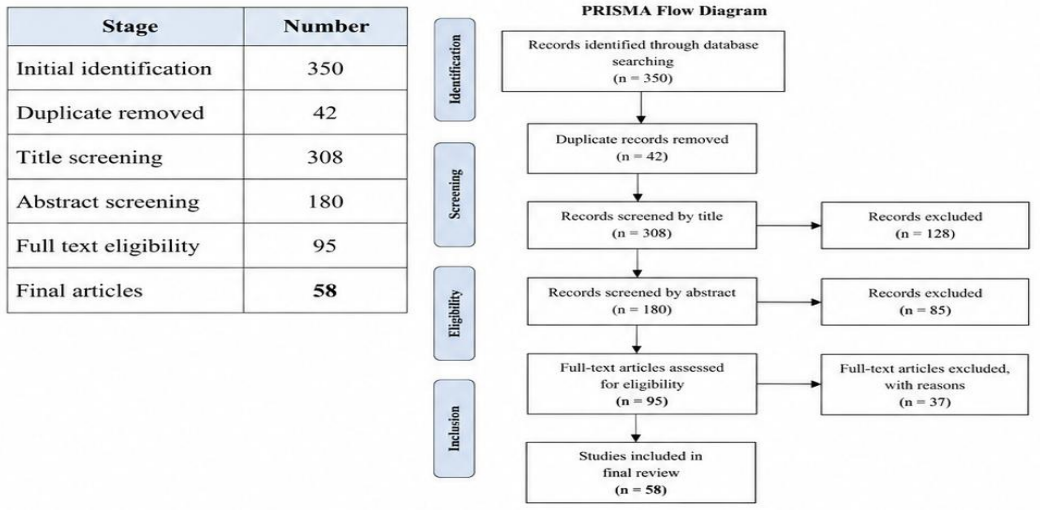
Article Selection Procedure

To guarantee a clear, methodical, and repeatable selection of studies included in this review, the article selection procedure adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guideline (Page et al., 2021). Identification, screening, eligibility, and inclusion were the four steps that made up the selection process.

Bibliographic records were obtained from Google Scholar using Publish or Perish in accordance with the predetermined search strategy during the identification stage. Before moving on to the screening phase, duplicate records were found and eliminated. To ascertain their applicability to the research issue, the remaining publications were filtered according to

their titles and abstracts. Studies that did not match the inclusion criteria or that did not specifically address self-efficacy, entrepreneurial intention, or entrepreneurship education were eliminated.

The full texts of the remaining studies were subsequently assessed during the eligibility stage. Articles were evaluated based on publication year, language, research relevance, accessibility of the full text, and methodological suitability. Only studies that fully satisfied all inclusion criteria were retained for the final synthesis and bibliometric analysis.



Stage	Number
Initial identification	350
Duplicate removed	42
Title screening	308
Abstract screening	180
Full text eligibility	95
Final articles	**58**

Figure 1.
Article Selection Procedure

A total of 350 records were first found after the PRISMA screening process. 308 items were left for title screening after 42 duplicate records were eliminated. After that, 95 full-text articles were evaluated for eligibility, and 180 articles satisfied the requirements for abstract screening. 58 articles were kept for the integrated literature review and bibliometric analysis after the predetermined inclusion and exclusion criteria were applied. In order to analyze research patterns, thematic relationships, and the evolution of entrepreneurship education, entrepreneurial intention, and self-efficacy, the final dataset was deemed sufficiently representative.

Bibliometric Analysis

In order to illustrate the intellectual structure and topic linkages within the literature on entrepreneurship education, entrepreneurial intention, and self-efficacy, VOSviewer version 1.6.20 was used to examine the final dataset of 58 selected articles. In order to find research clusters, conceptual connections, and emerging topics, bibliometric mapping concentrated on keyword co-occurrence analysis. Additionally, citation metrics such as total citations, average citations, and h-index were obtained using Publish or Perish in order to identify influential articles and assess the scientific impact of the chosen literature (Van Eck & Waltman, 2010; Harzing, 2007).

Data Interpretation

The findings from the integrative literature review and bibliometric analysis were interpreted qualitatively through thematic synthesis. The interpretation focused on identifying recurring themes, conceptual relationships, and research gaps regarding entrepreneurship education, entrepreneurial intention, and self-efficacy. The combined use of literature synthesis and bibliometric evidence enabled a comprehensive understanding of current research trends and supported the formulation of theoretical and practical implications for entrepreneurship education in higher education (Snyder, 2019).

RESULTS AND DISCUSSION

Bibliometric Analysis Results

Annual Publication Trend

The distribution of publications across the specified timeline reflects a sustained and growing academic interest in the topic, peaking in 2023 before showing stabilized traction in the subsequent years.

Table 1. Annual Publication Trend (2020–2025)

Year	Number of Publications	Percentage (%)
2020	52	14.83%
2021	61	17.44%
2022	69	19.77%
2023	74	21.22%
2024	69	19.77%
2025	25	6.98%
Total	**350**	**100.00%**

Highly Influential Studies (Top 10 Most Cited Articles)

Citation performance serves as an indicator of academic impact and foundational influence within the domain. Table 2 outlines the top 10 most cited papers from the PoP, showcasing the cornerstone literature guiding this study.

Table 2. Top 10 Most Cited Articles

No	Author	Year	Citations	Core Focus / Contribution
1	Boldureanu et al.	2020	794	Evaluates the role of entrepreneurship education and role models in changing students' attitudes.
2	Wardana et al., 2020	2020	560	Examines the direct impact of entrepreneurship education on mindset and intent.
3	Vamvaka et al., 2020	2020	464	Applies the Theory of Planned Behavior to measure entrepreneurial intentions.
4	Shah et al.,	2020	324	Identifies the moderating effect of academic institutional support in shaping intent.
5	Hoang et al.	2020	272	Links university-level entrepreneurial education ecosystems with student motivation.
6	Boubker et al.	2021	270	Compares entrepreneurial intent variance across distinct student cohorts.
7	Handayati et al.	2020	265	Assesses vocational education pathways and their institutional outcomes.
8	Lv et al.	2021	252	Explores how campus-wide incubation programs boost entrepreneurial self-efficacy.
9	Hassan et al.,	2021	238	Analyzes individual entrepreneurial orientation paired with environmental factors.
10	Elliott et al.	2020	221	Investigates peer-mentoring mechanisms and localized structural support programs.

Keyword Co-occurrence

To map the conceptual boundaries and network density of the current domain, a network analysis was performed using VOSviewer based on co-occurrence frequencies and Total Link Strength (TLS).

Table 3. Most Frequent Keywords

Keyword	Occurrence	TLS	Conceptual Cluster
Entrepreneurial Intention	85	120	Main Outcome Variable / Core Focus
Entrepreneurship Education	72	105	Primary Antecedent / Institutional Intervention
Self-Efficacy	64	92	Psychological / Cognitive Mediator
Higher Education	45	68	Contextual Background / Research Setting
Perceived Behavioral Control	38	55	Structural Component of Intent Models (TPB)

Entrepreneurship Education

Through both formal and informal learning, entrepreneurship education aims to build knowledge, attitudes, and skills in both individuals and groups. The main goal is to form a generation that is able to take responsibility for every action taken (Sari et al., 2021). In addition, entrepreneurship education plays a role in encouraging the development of creativity, initiative, a sense of responsibility, the ability to make decisions, and readiness to face risks (Wardhani, 2023). Therefore, entrepreneurship education has a strategic role in fostering an entrepreneurial mindset and shaping innovative and creative student attitudes and behaviors.

Attitude formation is the first step in entrepreneurship education, which is followed by the growth of an entrepreneurial mindset and the development of inventive and creative actions. This approach ensures that students are capable of generating new ideas and responding to challenges in the business world (Fanny, 2020). Key concepts of entrepreneurship, such as starting and growing a venture, involve critical elements that are not covered in general management, which separates management from business ownership (Nuraeni, 2022). Entrepreneurship is also recognized as a discipline with a clear focus, namely the ability to create something new and different and the skills to start a business (Sari et al., 2021).

Dimensions of Entrepreneurship Education

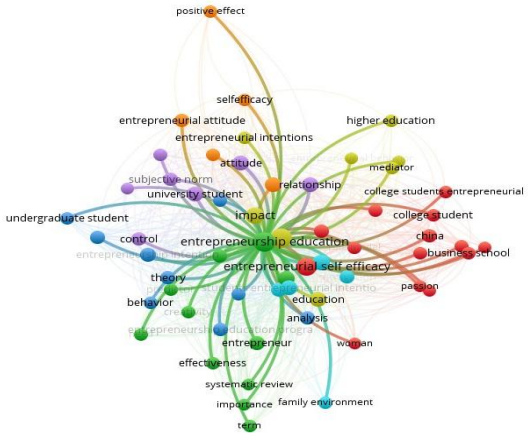


Figure 2. VOSViewer Bibliometric Analysis of Entrepreneurship Education

Bibliometric analysis using VOSviewer indicates that entrepreneurship education involves several important dimensions. These dimensions are closely associated with curriculum design, pedagogical effectiveness, entrepreneurial behavior, and experiential learning. The green cluster links entrepreneurship education with entrepreneurial theory and behavior, while the purple cluster emphasizes the educational context in higher education, including university students and undergraduate programs. Experience-based entrepreneurship education has been shown to be more effective in shaping a long-term entrepreneurial mindset (Hassan, 2020; Soomro & Shah, 2022).

The network visualization demonstrates that entrepreneurship education occupies a central position within the bibliometric map and is strongly connected with entrepreneurial intention, entrepreneurial self-efficacy, innovation, learning, and entrepreneurial behavior. These interconnections indicate that entrepreneurship education has evolved beyond the traditional objective of transferring entrepreneurial knowledge. Contemporary studies increasingly recognize entrepreneurship education as a comprehensive learning process that develops entrepreneurial competencies, psychological readiness, and entrepreneurial behavior through structured educational experiences.

The thematic clusters further illustrate the multidimensional nature of entrepreneurship education. The green cluster primarily represents entrepreneurship learning processes, emphasizing entrepreneurial knowledge, innovation, entrepreneurial competence, and

entrepreneurial behavior. This cluster suggests that previous studies have focused on how educational activities foster entrepreneurial thinking and prepare students for entrepreneurial careers. Meanwhile, the purple cluster reflects higher education contexts, including universities, undergraduate students, entrepreneurship courses, and institutional support. The close relationship between these clusters demonstrates that universities play a strategic role in creating entrepreneurial ecosystems through curriculum development and experiential learning.

The proximity of entrepreneurship education to entrepreneurial self-efficacy within the bibliometric network also indicates a growing research interest in psychological mechanisms underlying entrepreneurial learning. Rather than examining entrepreneurship education solely as an instructional activity, recent studies increasingly investigate how educational experiences enhance students' confidence, entrepreneurial competence, and readiness to establish new ventures. This trend reflects a gradual shift from knowledge-oriented entrepreneurship education toward competency-based and experience-based learning approaches.

A study by Lu et al. (2021) highlights that active involvement in entrepreneurial projects positively impacts students' long-term motivation. Therefore, entrepreneurship education is not merely instructional but also transformative, acting as a catalyst for developing entrepreneurial thinking through exposure to real business challenges, project-based learning, business simulations, and mentoring by practitioners. These learning experiences provide opportunities for students to strengthen entrepreneurial self-efficacy while simultaneously improving entrepreneurial competencies and intentions.

The bibliometric findings also reveal an important research trend. Earlier entrepreneurship education studies predominantly examined curriculum implementation and entrepreneurial knowledge acquisition. More recent publications increasingly integrate psychological constructs, particularly entrepreneurial self-efficacy, entrepreneurial mindset, and entrepreneurial competence, into entrepreneurship education research. This evolution indicates that entrepreneurship education is increasingly understood as a holistic educational process that simultaneously develops knowledge, skills, attitudes, and entrepreneurial confidence.

Nevertheless, the bibliometric network also identifies a remaining research gap. Although entrepreneurship education is strongly connected with entrepreneurial intention and entrepreneurial self-efficacy, previous studies have generally examined these relationships independently through empirical survey designs conducted in specific institutional settings. Comparatively limited studies have synthesized these relationships through integrative literature reviews while simultaneously mapping their intellectual structure using bibliometric analysis. This finding highlights the need for more comprehensive studies integrating educational, psychological, and behavioral perspectives within entrepreneurship education research.

Implications of Entrepreneurship Education

The implications of entrepreneurship education are that it functions as a catalyst for transforming students' mindsets toward innovation and entrepreneurship. Transformative entrepreneurship education encourages students to learn through problem-based learning, mentoring by practitioners, business simulations, and active involvement in entrepreneurial projects. Hence, effective entrepreneurship education should integrate theory, practice, and real-world experience to prepare students to face business challenges with greater readiness. The bibliometric analysis further suggests that entrepreneurship education should not only focus on developing entrepreneurial knowledge but should also strengthen entrepreneurial self-efficacy and entrepreneurial competence, as these psychological and behavioral dimensions are consistently associated with stronger entrepreneurial intentions and long-term entrepreneurial engagement.

Entrepreneurial Intention

A key idea in entrepreneurship study is entrepreneurial intention (EI), which denotes a person's desire to pursue entrepreneurial endeavors in the future. EI has a crucial role in the context of entrepreneurship education and research, as demonstrated by the analysis of VOSViewer data, which reveals that EI is the most dominating node in the network of entrepreneurship concepts. Important factors including education, self-efficacy, attitude, and control are intimately related to EI. These links demonstrate the intricate and varied character of entrepreneurial purpose, which is impacted by both personal psychological traits and external environmental circumstances.

The VOSviewer bibliometric analysis identifies entrepreneurial intention as the most dominant and central node within the entrepreneurship research network. This finding demonstrates that entrepreneurial intention occupies a strategic position in explaining entrepreneurial behavior and has become a key construct connecting various dimensions of entrepreneurship research. The strong relationships between entrepreneurial intention and variables such as entrepreneurship education, entrepreneurial self-efficacy, attitude, perceived behavioral control, and entrepreneurial competence indicate that entrepreneurial intention is increasingly understood as a multidimensional construct shaped by both internal and external factors.

Demensions Of Entrepreneurship Intention

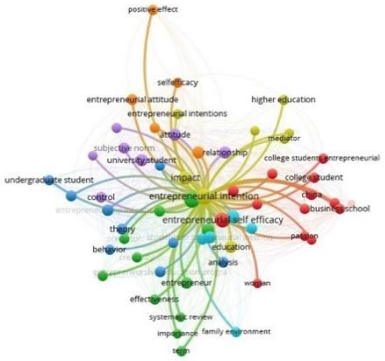


Figure 3. VOSViewer Bibliometric Analysis of Entrepreneural Intention

The VOSviewer network visualization reveals several interconnected clusters that represent the major research dimensions associated with entrepreneurial intention. The red cluster represents the central research stream focusing on entrepreneurial intention, entrepreneurial behavior, attitude, and perceived behavioral control. This cluster highlights that entrepreneurial intention remains a fundamental concept for explaining how individual cognition develops into entrepreneurial action. The strong position of entrepreneurial intention within this cluster indicates that entrepreneurship research continues to investigate the psychological processes that influence individuals before they engage in entrepreneurial activities.

The blue cluster represents psychological dimensions, particularly entrepreneurial self-efficacy, motivation, confidence, and psychological capital. The strong connection between entrepreneurial intention and entrepreneurial self-efficacy indicates that researchers increasingly emphasize the role of personal belief in entrepreneurial capability. Individuals who possess stronger entrepreneurial self-efficacy tend to demonstrate greater confidence in identifying opportunities, managing uncertainty, and pursuing entrepreneurial careers. This finding supports the argument by Hassan (2020) and Taneja & Bhatia, (2022), who highlighted that perceived behavioral control and self-belief are important predictors of entrepreneurial intention.

The green cluster reflects entrepreneurship learning processes, including entrepreneurship education, entrepreneurial competencies, and learning experiences. This cluster demonstrates that entrepreneurship education has become a significant dimension in explaining the development of entrepreneurial intention. Entrepreneurship education is

increasingly viewed not only as a process of transferring entrepreneurial knowledge but also as an educational mechanism that develops entrepreneurial skills, confidence, and behavioral readiness. The close relationship between entrepreneurship education and entrepreneurial self-efficacy suggests that educational experiences contribute to entrepreneurial intention formation by strengthening students' perceptions of their entrepreneurial capability.

The yellow cluster represents educational interventions, curriculum development, and institutional support in entrepreneurship development. The emergence of this cluster indicates a growing research interest in how higher education institutions create entrepreneurial ecosystems through curriculum design, mentoring, experiential learning, and entrepreneurial projects. This trend reflects the movement of entrepreneurship research from individual-level explanations toward broader educational and contextual perspectives.

The relationships among these clusters demonstrate that entrepreneurial intention functions as a connecting construct between entrepreneurship education, psychological mechanisms, and entrepreneurial behavior. Entrepreneurship education provides external learning experiences, entrepreneurial self-efficacy represents the psychological mechanism, and entrepreneurial intention reflects the cognitive readiness that precedes entrepreneurial action. This relationship is consistent with the Theory of Planned Behavior (TPB), which explains that behavioral intention is influenced by attitude, subjective norms, and perceived behavioral control.

The research also demonstrates that psychological capital, such as resilience, optimism, and self-efficacy, has a significant impact on entrepreneurial intention. Entrepreneurship education contributes to these psychological dimensions through experiential learning activities, mentoring, business simulations, and project-based learning. Therefore, entrepreneurial intention should not be interpreted merely as an outcome of educational exposure but as the result of a developmental process involving knowledge, psychological readiness, and practical entrepreneurial experiences.

The bibliometric pattern also illustrates the evolution of entrepreneurship research. Earlier studies primarily focused on examining the direct relationship between entrepreneurship education and entrepreneurial intention. However, recent studies have increasingly explored the underlying mechanisms explaining this relationship, including entrepreneurial self-efficacy, entrepreneurial competence, psychological capital, and learning experiences. This development indicates a transition from a simple relationship perspective toward a more comprehensive understanding of how entrepreneurial intention is formed.

Although the connections among entrepreneurship education, entrepreneurial self-efficacy, and entrepreneurial intention are strongly established, the bibliometric analysis reveals an important research gap. Many previous studies have examined these relationships separately using empirical approaches within specific educational contexts. Limited studies have integrated these concepts through an integrative literature review supported by bibliometric analysis to explain the intellectual development, emerging themes, and future directions of entrepreneurial intention research.

Implications for Entreneurship Education

The findings of the bibliometric analysis provide important implications for entrepreneurship education development. Entrepreneurship programs should concentrate on building students' entrepreneurial confidence, competencies, and behavioral readiness rather than just imparting theoretical knowledge, as there is a strong correlation between entrepreneurial education, entrepreneurial self-efficacy, and entrepreneurial intention.

Entrepreneurship education should incorporate experiential learning, mentoring, business simulations, and project-based activities that allow students to apply entrepreneurial knowledge in practical situations. These learning approaches can strengthen entrepreneurial self-efficacy by providing students with opportunities to develop problem-solving abilities, opportunity recognition skills, and confidence in managing entrepreneurial challenges.

As emphasized by Utami (2017), individuals with higher entrepreneurial self-efficacy tend to demonstrate greater confidence and optimism toward establishing new ventures, which subsequently strengthens their entrepreneurial intention. Therefore, entrepreneurship curricula

should be designed not only to improve entrepreneurial knowledge but also to cultivate psychological capabilities such as confidence, resilience, and persistence.

The findings also imply that higher education institutions should consider entrepreneurship education as a comprehensive development process involving cognitive, psychological, and practical dimensions. From a research perspective, future studies should continue integrating educational, psychological, and contextual factors to develop more comprehensive models explaining entrepreneurial intention formation across different educational and cultural settings.

Self-Efficacy

Self-efficacy is the conviction that one can control and perform the required actions to get the desired outcomes (Fathonah, 2020). Self-efficacy plays a crucial part in entrepreneurship since it influences an individual's degree of confidence in launching and effectively running a business. Four primary factors impact the development of self-efficacy: mastery experience, vicarious experience, social support or persuasion, and physiological and emotional circumstances. Together, these four elements help to boost a person's self-confidence (Alahakoon & Somaratne, 2018).

In the context of entrepreneurship, self-efficacy has a crucial role in determining the extent to which individuals take the initiative to face uncertainty, which is one of the main characteristics of success in the field. Based on the Theory of Planned Behavior, self-efficacy is part of the perception of feasibility that forms behavior control, thus affecting the emergence of entrepreneurial intentions (Amran, 2022). When individuals have confidence that they are able to complete entrepreneurial tasks well, then their tendency to engage in entrepreneurial activities will also be higher.

Self-Efficacy Dimension

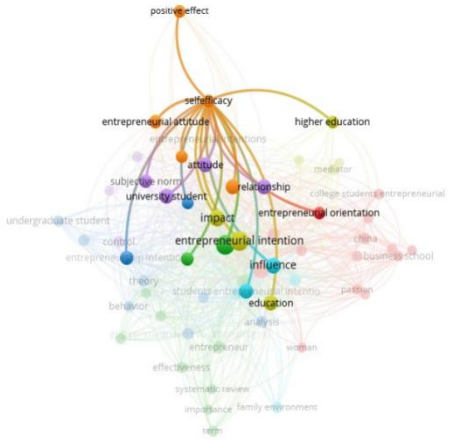


Figure 4. VOSViewer Bibliometric Analysis of Self Efficacy

The VOSviewer bibliometric visualization demonstrates that self-efficacy occupies a central position within entrepreneurship research by connecting psychological, educational, and behavioral dimensions. The network structure indicates that self-efficacy is closely linked with entrepreneurship education, entrepreneurial intention, attitude, motivation, social norms, and entrepreneurial behavior, suggesting that self-efficacy functions as an important bridge between individual cognition and entrepreneurial action.

The orange cluster represents the cognitive dimensions of entrepreneurship research, where self-efficacy is connected with concepts such as entrepreneurial mindset, confidence, motivation, and perceived capability. This cluster highlights the internal psychological process through which individuals develop confidence in their entrepreneurial abilities. The presence of self-efficacy within this cluster demonstrates that entrepreneurial behavior is not only influenced by external opportunities but also by individuals' beliefs regarding their ability to succeed.

The blue cluster reflects the social and educational dimensions associated with self-efficacy, including social norms, entrepreneurship education, and learning environments. This cluster indicates that self-efficacy is shaped through interaction with external environments. Educational experiences, institutional support, mentoring, and social encouragement contribute to strengthening individuals' entrepreneurial confidence. The connection between self-efficacy and entrepreneurship education suggests that learning processes can serve as important mechanisms for developing entrepreneurial capability.

The relationship among these clusters demonstrates that self-efficacy acts as both a cognitive and affective mechanism in entrepreneurship development. From a cognitive perspective, self-efficacy influences how individuals evaluate opportunities and their ability to overcome challenges. From an affective perspective, self-efficacy influences motivation, optimism, and persistence in pursuing entrepreneurial goals. Consequently, the relationship between educational interventions and entrepreneurial intention is mediated by self-efficacy.

The bibliometric structure also indicates that self-efficacy research has evolved from focusing primarily on individual psychological characteristics toward understanding its interaction with educational and social environments. Earlier studies mainly examined self-efficacy as a personal predictor of entrepreneurial behavior, while recent studies increasingly explore how entrepreneurship education, mentoring, and experiential learning contribute to developing entrepreneurial self-efficacy.

Several factors influence the development of entrepreneurial self-efficacy. First, gender differences have been identified as an important factor, where some studies suggest that women may experience lower entrepreneurial self-efficacy due to differences in confidence, social expectations, and access to entrepreneurial experiences. However, inclusive learning approaches and targeted educational interventions can strengthen women's entrepreneurial confidence (Fathonah, 2020).

Second, social environment plays an important role in shaping self-efficacy. Support from family, peers, mentors, and educational institutions can enhance individuals' confidence and motivation to pursue entrepreneurial activities. A supportive social environment provides encouragement, knowledge sharing, and positive experiences that strengthen entrepreneurial beliefs (Alahakoon & Somaratne, 2018).

Third, experience and mentorship contribute significantly to self-efficacy development. Practical involvement in start-up projects, internships, entrepreneurial simulations, and mentoring activities allows individuals to gain direct experience and improve their entrepreneurial capabilities. These experiences provide mastery experiences that strengthen confidence and readiness to engage in entrepreneurship (Munawar, 2019).

Despite the strong position of self-efficacy within entrepreneurship research, the bibliometric analysis reveals that further investigation is needed to understand how educational interventions systematically develop entrepreneurial self-efficacy. Many previous studies examine self-efficacy as a predictor of entrepreneurial intention, but fewer studies explore the process through which entrepreneurship education creates psychological transformation among students.

Implications for Entrepreneurship Education

The findings from the VOSviewer analysis highlight the strategic role of self-efficacy in entrepreneurship education. Since self-efficacy functions as a psychological mechanism connecting educational experiences and entrepreneurial intention, entrepreneurship programs should explicitly focus on strengthening students' confidence and perceived entrepreneurial capability.

Entrepreneurship education should incorporate learning strategies that provide students with direct entrepreneurial experiences, including problem-based learning, project-based learning, business simulations, and mentoring programs. These approaches allow students to practice entrepreneurial decision-making, solve real business problems, and develop confidence through successful learning experiences.

The development of self-efficacy through education is particularly important because entrepreneurial knowledge alone does not guarantee entrepreneurial action. Students may understand entrepreneurial concepts but hesitate to pursue entrepreneurship if they lack confidence in their ability to implement those concepts. Therefore, entrepreneurship curricula should integrate cognitive, practical, and psychological development dimensions.

As highlighted by Utami (2017), individuals with higher entrepreneurial self-efficacy tend to demonstrate greater confidence and optimism toward establishing new ventures, which subsequently strengthens entrepreneurial intention. Therefore, strengthening self-efficacy within entrepreneurship education can contribute not only to improving entrepreneurial competencies but also to developing students' motivation and readiness to pursue entrepreneurial careers.

From a research standpoint, future studies should take into account various educational contexts, cultural backgrounds, and learning methodologies in order to better examine self-efficacy as a mediating factor between entrepreneurship education and entrepreneurial intention. Deeper understanding of how self-efficacy supports the growth of entrepreneurship can be gained by combining bibliometric analysis with literature synthesis.

Integrative Discussion: The Role of Entrepreneurship Education in Fostering Student Entrepreneurial Intention through Self-Efficacy

The findings of this integrative literature review consistently demonstrate that entrepreneurship education, entrepreneurial self-efficacy, and entrepreneurial intention should not be understood as independent constructs but as interconnected components within the entrepreneurial development process. The bibliometric analysis further confirms this relationship by showing that entrepreneurship education, entrepreneurial self-efficacy, and entrepreneurial intention occupy central positions within the entrepreneurship research network and exhibit strong conceptual linkages. These findings suggest that entrepreneurship education functions as the educational foundation, entrepreneurial self-efficacy represents the psychological mechanism, and entrepreneurial intention constitutes the behavioral orientation that precedes entrepreneurial action.

Entrepreneurship education serves as the initial stage of entrepreneurial development by providing students with entrepreneurial knowledge, business skills, and authentic learning experiences. Beyond knowledge transfer, entrepreneurship education encourages students to develop creativity, innovation, opportunity recognition, and problem-solving abilities while fostering an entrepreneurial mindset. As students participate in project-based learning, business simulations, internships, entrepreneurial competitions, and field practice, they acquire mastery experiences that strengthen their confidence in performing entrepreneurial tasks. Consequently, entrepreneurship education contributes not only to cognitive development but also to the formation of psychological readiness for entrepreneurship.

The literature consistently indicates that entrepreneurial self-efficacy functions as the primary psychological pathway through which entrepreneurship education influences entrepreneurial intention. According to the Theory of Planned Behavior, self-efficacy contributes to perceived behavioral control, enabling individuals to believe that entrepreneurial activities are achievable despite uncertainty and risk (Amran, 2022). Similarly, Bandura's social cognitive perspective suggests that mastery experience, vicarious learning, social persuasion, and emotional regulation strengthen individuals' beliefs regarding their entrepreneurial capabilities (Alahakoon & Somaratne, 2018). Therefore, educational experiences become meaningful only when they successfully transform entrepreneurial knowledge into entrepreneurial confidence.

Several empirical studies reinforce this mechanism. Darmawan (2019) reported that entrepreneurship education positively influences entrepreneurial intention through both direct and indirect pathways. Likewise, Falah (2022) demonstrated that entrepreneurship education and field practice significantly strengthen entrepreneurial interest by providing practical entrepreneurial experiences. Wu et al. (2022) further found that entrepreneurship education

positively affects entrepreneurial self-efficacy, which subsequently enhances entrepreneurial intention, while entrepreneurial experience, competition participation, gender, and family background also contribute to students' entrepreneurial development. These findings collectively indicate that entrepreneurship education becomes more effective when accompanied by opportunities that allow students to develop confidence through practical entrepreneurial engagement.

However, the literature also demonstrates that entrepreneurship education does not always directly translate into entrepreneurial intention. Ilhami (2023) argued that the influence of entrepreneurship education on entrepreneurial intention becomes stronger when entrepreneurial self-efficacy acts as a mediating mechanism. Students may acquire entrepreneurial knowledge through classroom learning, yet without sufficient confidence in their entrepreneurial capability, they may hesitate to pursue entrepreneurial careers. This finding explains why self-efficacy occupies a central position within the bibliometric network, connecting educational interventions with entrepreneurial outcomes.

The development of entrepreneurial self-efficacy is influenced by multiple educational and contextual factors. Practical entrepreneurial experiences, mentorship, internships, and start-up projects provide mastery experiences that strengthen students' confidence (Munawar, 2019). Positive feedback and encouragement from lecturers further reinforce students' entrepreneurial beliefs through social persuasion, gradually transforming uncertainty into confidence (Arief, 2021). Furthermore, supportive family environments, peer interactions, and institutional support contribute to strengthening entrepreneurial self-efficacy, while inclusive entrepreneurship education can reduce confidence disparities associated with gender differences (Fathonah, 2020). Consequently, entrepreneurship education should be designed as a comprehensive learning ecosystem rather than a knowledge-oriented curriculum.

Previous studies also identify entrepreneurial self-efficacy as one of the most influential determinants of entrepreneurial intention (Atmono et al., 2023). Self-efficacy reflects individuals' confidence in utilizing their knowledge, experience, and entrepreneurial competencies to establish new ventures (Lestari, 2020). Students who possess stronger entrepreneurial self-efficacy tend to demonstrate greater optimism, resilience, persistence, and willingness to overcome business uncertainty. Consistent with this perspective, Utami (2017) emphasized that individuals with higher entrepreneurial self-efficacy exhibit stronger entrepreneurial intentions because they perceive entrepreneurial challenges as manageable rather than threatening. Likewise, Hutasuhut et al. (2023) reported that individuals with high entrepreneurial self-efficacy are more capable of overcoming obstacles and maintaining commitment throughout the entrepreneurial process.

The bibliometric analysis also reveals an important evolution in entrepreneurship research. Earlier studies predominantly examined the direct relationship between entrepreneurship education and entrepreneurial intention. More recent research increasingly incorporates entrepreneurial self-efficacy, psychological capital, experiential learning, entrepreneurial competence, and educational environments as explanatory mechanisms underlying entrepreneurial intention formation. This shift indicates a transition from outcome-oriented research toward process-oriented perspectives that seek to explain how educational interventions generate psychological readiness before influencing entrepreneurial behavior.

Despite these developments, important research gaps remain. Existing studies predominantly rely on empirical survey designs conducted within specific institutional settings, while relatively limited attention has been given to synthesizing these findings through integrative literature reviews supported by bibliometric analysis. Consequently, the intellectual development of entrepreneurship education, entrepreneurial self-efficacy, and entrepreneurial intention has not been comprehensively integrated. The present study addresses this gap by demonstrating that entrepreneurial self-efficacy functions as the critical psychological bridge connecting entrepreneurship education with entrepreneurial intention, thereby providing a more comprehensive framework for understanding entrepreneurial development among university students.

CONCLUSIONS

This integrative literature review supported by bibliometric analysis demonstrates that entrepreneurship education plays an important role in shaping students' entrepreneurial intentions through the development of entrepreneurial self-efficacy. The findings indicate that entrepreneurship education contributes not only to entrepreneurial knowledge and skills development but also to students' confidence, perceived capability, and readiness to engage in entrepreneurial activities. Self-efficacy emerges as an important psychological mechanism that explains how educational experiences are transformed into stronger entrepreneurial intentions. This study contributes to entrepreneurship education literature by integrating fragmented findings from previous studies and highlighting the role of self-efficacy as a mediating mechanism rather than merely an independent predictor of entrepreneurial intention. The bibliometric analysis reveals that current research trends increasingly focus on experiential learning, psychological factors, educational environments, and entrepreneurial development among students. However, further research is needed to develop more integrated models explaining how entrepreneurship education influences entrepreneurial intention through psychological and contextual mechanisms. From a practical perspective, higher education institutions should design entrepreneurship programs that emphasize experiential learning, project-based activities, mentoring, business simulations, and entrepreneurial practices to strengthen students' self-efficacy and entrepreneurial readiness. Future studies may further validate these relationships through empirical approaches, including longitudinal studies, comparative research, and structural equation modeling to provide deeper insights into the development of entrepreneurial intention.

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