

Evolution of Entrepreneurship education research through bibliometric analysis

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Abstract:

Considering the crucial role of entrepreneurship education in universities for the economic development (Nguyen & Nguyen, 2024), this study seeks to map the research landscape in the entrepreneurship education field. A bibliometric literature review was conducted to quantitatively analyze the literature published in the last decade in Scopus. This study adopts the PRISMA framework (The Preferred Reporting Items for Systematic reviews and Meta-Analyses) to examine 668 papers. The prominent contributions in this domain were summarized through adopting VOSviewer software and the R bibliometric packages. Our analysis revealed the distribution of entrepreneurship education in universities across the years 2013-2023, with the leading countries in this field and notable journals and authors with high impact factors being identified, alongside the keywords with the highest occurrence and the key subject areas involved. This research provides a rigorous quantitative study of research within entrepreneurship education in universities over the last decade, providing a comprehensive overview and guiding future research directions, with its theoretical contribution lying in systematic bibliometric mapping that reveals knowledge structures, research evolution patterns, and critical gaps within entrepreneurship education research, thereby establishing an empirical foundation for future theoretical development and methodological advancement in the field.

Keywords: Bibliometric analysis, Entrepreneurial learning, Entrepreneurship education, Higher education, Research trends, Students, University.

Classification JEL : M13

Paper type: Theoretical Research

1. Introduction

Entrepreneurship education (EE) has emerged as a significant component of higher education curricula globally, with universities increasingly integrating entrepreneurial learning in response to economic development policies and innovation imperatives (Nabi et al., 2017; Kuratko, 2005). The field has experienced substantial expansion over the past two decades, evolving from a peripheral academic offering to a mainstream educational priority across diverse institutional contexts (Neck & Greene, 2011). This growth reflects broader recognition of entrepreneurship's role in economic development, innovation, and employment creation, prompting increased institutional investment in entrepreneurial education programs (Fayolle & Gailly, 2015; Morris et al., 2013).

However, this expansion has occurred within a theoretically fragmented landscape characterized by definitional ambiguity and methodological inconsistency. Mwasalwiba (2010) documented fundamental disagreements regarding EE's core objectives across 108 academic articles, while subsequent studies have confirmed persistent conceptual confusion, with researchers identifying multiple distinct definitions of entrepreneurship education without theoretical consensus (Naia et al., 2015; Sirelkhatim & Gangi, 2015). This theoretical dispersion has generated extensive scholarly output without corresponding knowledge synthesis, creating what Fayolle (2013) termed "epistemological confusion" that impedes theoretical advancement and practical application.

Despite extensive research activity, existing systematic reviews have provided limited comprehensive understanding of the field's intellectual evolution and theoretical development patterns. Previous reviews have typically focused on pedagogical effectiveness (Rideout & Gray, 2013), learning outcomes (Martin et al., 2013), or specific regional contexts (Pittaway & Cope, 2007), while lacking systematic analysis of how entrepreneurship education has evolved as an academic domain. This creates a critical knowledge gap: without systematic mapping of research patterns, theoretical frameworks, and knowledge structures, the field cannot achieve the paradigmatic coherence necessary for effective theory building and evidence-based practice development.

Given this research gap and to establish foundations for future theoretical advancement, the objective of this study is to conduct a comprehensive bibliometric analysis of university entrepreneurship education research to understand its intellectual architecture, knowledge evolution, and theoretical development patterns, thereby answering the research question: What are the knowledge structures, research evolution patterns, and theoretical development trajectories characterizing entrepreneurship education research, and what gaps exist that require future scholarly attention? This bibliometric methodology was selected because it enables systematic examination of research patterns, intellectual structures, and knowledge evolution through quantitative analysis of scholarly communication, allowing identification of theoretical clusters and emerging research frontiers that remain invisible through traditional narrative approaches (Donthu et al., 2021; Zupic & Čater, 2015).

From an epistemological perspective, this investigation adopts a post-positivist framework informed by scientific realism, employing an integrated theoretical framework combining Pfeffer's (1993) scientific field development model and DiMaggio and Powell's (1983) institutional isomorphism theory to systematically interpret bibliometric patterns and assess field maturity. This approach recognizes that systematic empirical analysis can reveal objective patterns within scholarly communication networks while acknowledging the theory-laden nature of knowledge (Börner et al., 2003).

In total, 668 articles published in the Scopus database between 2013-2023 were analyzed using PRISMA protocol implementation, constituting a systematic examination of contemporary entrepreneurship education research in university contexts. The articles were analyzed using

VOSviewer software and R bibliometric packages, enabling identification of citation patterns, co-authorship networks, keyword co-occurrence, and thematic clustering to provide comprehensive understanding of the field's intellectual development.

This article is structured in six sections. Section 1 provides the introduction. Section 2 presents the literature review establishing theoretical foundations. Section 3 explains the bibliometric methodology employed. Section 4 presents results then Section 5 with analysis and discussion. Section 6 addresses limitations and concludes with implications for theory and practice.

2. Literature review

Entrepreneurship education emerged in the late 1940s with Harvard Business School's first new venture management course, expanding significantly during the 1970s-1980s alongside growing recognition of small business economic importance (Vesper & Gartner, 1997; Solomon et al., 1994). The field draws from multiple disciplines including psychology, economics, management, and education theory, creating what Shane and Venkataraman (2000) characterize as an interdisciplinary foundation that has generated substantial scholarly output but limited theoretical integration (Neck & Greene, 2011).

Kolb's (1984) experiential learning theory has achieved paradigmatic dominance, cited in over 70% of entrepreneurship education studies and emphasizing cyclical learning through experience, reflection, conceptualization, and experimentation (Corbett, 2005; Morris et al., 2013). However, critical examination reveals fundamental limitations. First, the model assumes linear progression through discrete stages, whereas entrepreneurial learning exhibits non-linear, context-dependent characteristics (Rae, 2005; Politis, 2005). Second, its individualistic orientation neglects the inherently social nature of entrepreneurial learning through networks and communities (Taylor & Thorpe, 2004). Empirical validation remains problematic, with only 34% of entrepreneurship students exhibiting predicted learning preferences and weak correlations between experiential activities and competency development (Bergman et al., 2016; Nabi et al., 2017).

Bandura's (1977) social learning theory influences understanding of entrepreneurial skill acquisition through observation and role modeling (Krueger, 2007). However, the theory oversimplifies complex cognitive processes in entrepreneurial learning and inadequately addresses the transition from observation to independent action, particularly given entrepreneurship's context-specific nature (Cope, 2005; Shane, 2000). Successful entrepreneurs often develop counter-intuitive approaches that contradict conventional wisdom transmitted through social learning (Sarasvathy, 2001).

Recent developments address these limitations through more sophisticated frameworks. Sarasvathy's (2001) effectuation theory challenges traditional planning approaches, emphasizing means-driven action and experimentation. The entrepreneurial cognition paradigm examines information processing and opportunity recognition (Mitchell et al., 2002), while transformational learning theory focuses on deep worldview changes rather than surface-level skills (Mezirow, 1991; Cope, 2003).

Despite theoretical proliferation, significant gaps persist. Limited integration exists between cognitive, social, and experiential frameworks, resulting in fragmented approaches (Fayolle, 2013). The relationship between entrepreneurship education and actual performance remains underdeveloped, with few longitudinal studies tracking venture creation (Rideout & Gray, 2013; Martin et al., 2013). Insufficient attention addresses cultural and contextual factors affecting learning effectiveness (Fayolle & Gailly, 2008).

These gaps suggest critical theoretical propositions: P1: The dominance of psychological frameworks in entrepreneurship education research may reflect methodological convenience rather than theoretical appropriateness for understanding complex learning processes; P2: The field's rapid growth without corresponding theoretical maturation indicates institutional

isomorphism rather than knowledge advancement; P3: Geographic and methodological concentration limits theoretical development and cultural validity of entrepreneurship education models.

The field's rapid expansion and theoretical fragmentation necessitate systematic knowledge synthesis through bibliometric analysis (Paul & Criado, 2020). This methodology enables objective examination of research patterns, intellectual structures, and knowledge evolution through quantitative analysis of scholarly communication (Donthu et al., 2021). Previous bibliometric studies in entrepreneurship have focused on the broader domain rather than specifically on university entrepreneurship education, particularly for the transformative 2013-2023 period when the field experienced unprecedented growth.

To guide this bibliometric investigation, we adopt an integrated theoretical framework combining Pfeffer's (1993) scientific field development model and DiMaggio and Powell's (1983) institutional isomorphism theory. Pfeffer's model enables assessment of entrepreneurship education research maturity through bibliometric indicators of theoretical fragmentation, consensus building, and paradigmatic development. DiMaggio and Powell's framework explains how institutional pressures influence research patterns, methodological convergence, and geographic concentration observed in academic fields. Together, these theories provide a systematic lens for interpreting bibliometric patterns and understanding both internal knowledge development and external institutional forces shaping entrepreneurship education research evolution.

3. Methodology

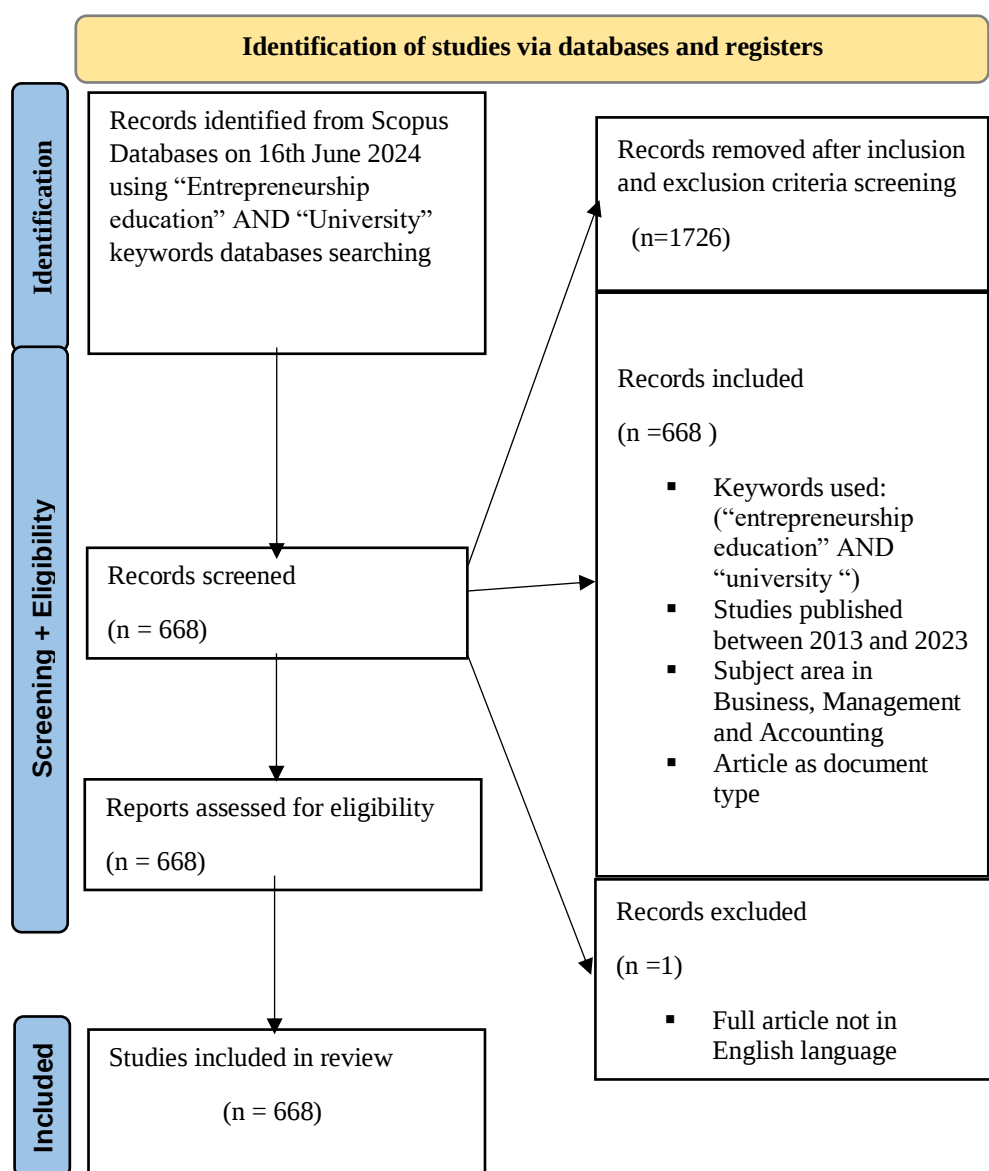
The method used consists of a bibliometric analysis. *"The Bibliometrics refers to the application of mathematical and statistical techniques to measure and evaluate various aspects of scholarly publications"* (Dong et al., 2024) ;in other words, it's a quantitative method to analyze systematically the existing scientific production within a specific field to offer a global overview and sheds light on the relevant literature, its authors, its journals, its countries...

Due to its scientific rigor, it has acquired an immense appeal in business research over the last years (Donthu et al., 2020). Based on The Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement template, the research was administered. The PRISMA framework enable readers to evaluate the applicability of the methodology and consequently the veracity of the study's conclusion (Samsul et al., 2023). This model is made up of four stages: Identification, Screening, Eligibility and Establishing which publications were included in the study. As shown in the PRISMA framework in figure 1, Entrepreneurship education in universities was the picked field to perform this bibliometric literature review, using the Scopus data base as a source. *A single database is utilized to limit the need for consolidation, thereby reducing unnecessary tasks and minimizing potential human errors* (Donthu et al., 2021).

A Boolean query syntax was adopted to structure and refine our document search precisely. The initial total number of documents found was 2394 by using the following search algorithm: "Entrepreneurship education" AND "University" on June 6th, 2024.

Considering the significant and rapid changes occurring globally in various aspects, notably following the pandemic, the period chosen for this study was the last 10 years. And according to the bibliometric analysis standards that exclude the scientific production of the unfinished year, we included as the first criteria the publications between 2013 and 2023.

Figure 1. PRISMA statement template (Page et al., 2021)



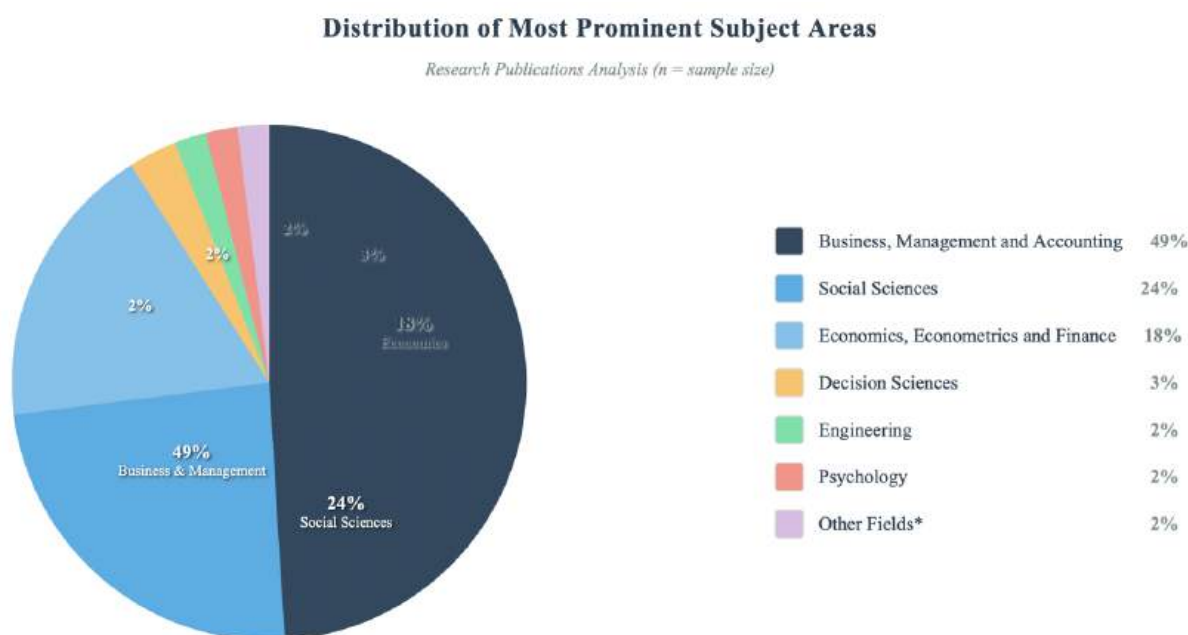
Source: Authors

Initial database analysis revealed that entrepreneurship education research spans multiple disciplinary domains, with 49% of publications concentrated in Business, Management and Accounting, followed by Social Sciences (23%) and Education (15%). Given that business-focused research typically employs consistent theoretical frameworks and methodological approaches relevant to our investigation of entrepreneurship education in university business contexts, we selected Business, Management and Accounting as our primary inclusion criterion to ensure analytical coherence and theoretical consistency (Zupic & Čater, 2015).

The restriction to peer-reviewed journal articles ensures analysis of the highest quality scholarly output, as these publications have undergone rigorous peer review processes that guarantee methodological rigor and theoretical contribution (Donthu et al., 2021; Paul & Criado, 2020). We excluded publications in languages other than English, as English is the predominant language in academic publications on educational research, and maintaining its use ensures consistency and rigor in bibliometric data analysis (Van Weijen, 2012).

The screening process yielded 668 publications, which represents an appropriate quantity that meets the standards for bibliometric analysis, since fewer than 300 papers are considered insignificant and do not warrant the use of bibliometric analysis (Donthu et al., 2021).

Figure2. Most prominent subject area in EE in universities research



Source: Authors

During the systematic filtering process, we excluded several categories of publications to maintain analytical rigor and topical coherence. First, articles from non-business subject areas (education, psychology, engineering, social sciences) were excluded because they often employ different theoretical frameworks and methodological approaches that could introduce analytical bias and reduce theoretical coherence within entrepreneurship education research in business contexts (Zupic & Čater, 2015). Second, conference papers, book chapters, reviews, editorials, and other non-article document types were systematically removed because they typically represent preliminary findings, exhibit variable quality control, or provide synthetic rather than original empirical research, potentially skewing citation patterns and impact assessments (Podsakoff et al., 2005; Tranfield et al., 2003). Third, non-English publications were excluded due to accessibility constraints and to maintain consistency with international scholarly communication standards, where English dominates high-impact business research (Van Weijen, 2012). Finally, articles that did not explicitly address both entrepreneurship education and university contexts were filtered out to ensure topical precision and relevance to the research objectives, following systematic review guidelines for maintaining focus and analytical validity (Paul & Criado, 2020).

For data analysis, we conducted comprehensive bibliometric examination using VOSviewer software and the open-source Bibliometrix package in R to systematically analyze publication patterns, author distributions, geographical zones, journal rankings, citation patterns, and thematic clusters through co-occurrence mapping and network visualization (Szczepanska-Woszczyna et al., 2024).

4. Results

This section highlights trend analysis, publications by years, author analysis, source analysis, country analysis and keywords analysis.

R studio generates a literature overview presenting the results. Considering literature from 2013 to 2023 from 180 journal, 668 papers were extracted written by 1661 authors with a 27.84 % rate of the international co-authorship and an average of 3 co-authors per document.

Figure3. R studio results Summary



Source: Authors

4.1 Distribution by years

The initial result addresses the first research question, focusing on the distribution of publications related to entrepreneurship education and universities from 2013 to 2023. Generally, considering the annual scientific production per articles from 2013 to 2023 exhibits a growth illustrated by an annual growth rate of 13.11%.

Figure 4. Distribution of EE education in universities publications by years



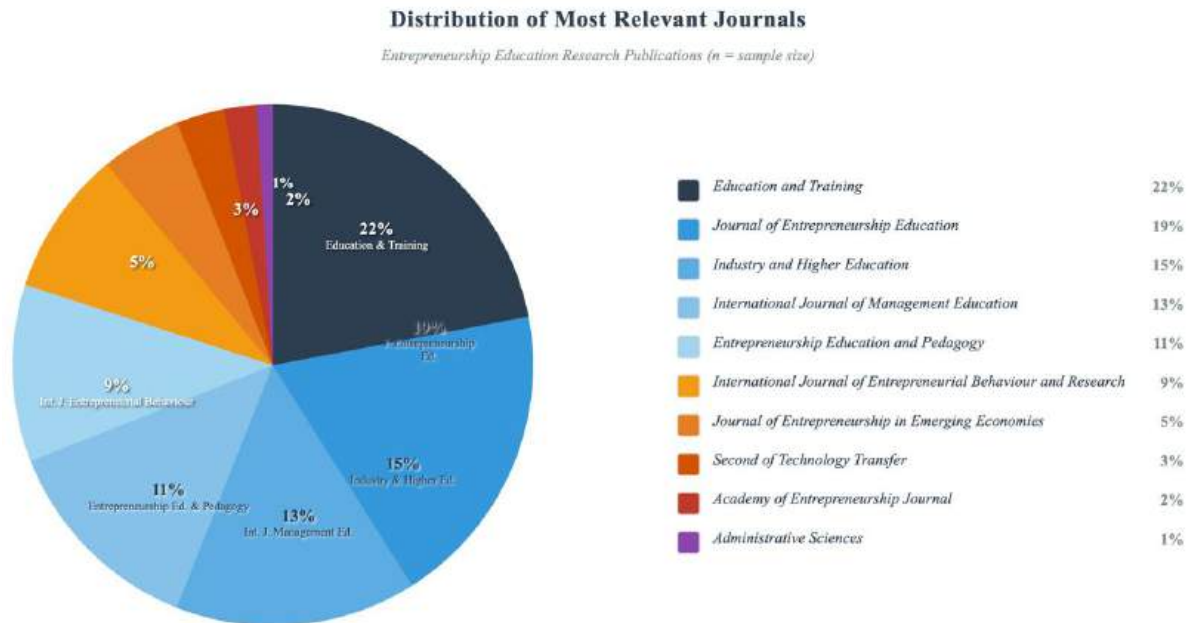
Source: Authors

As shown in Figure 4, the scientific output of 2013 represented 28 articles, whereas over 10 years this figure has been multiplied by more than 4 to reach 96 articles. Moderate fluctuations show up between (2014-2015), (2019-2020) and (2021-2022). The notable decline was from 103 publications in 2021 to 62 publications in 2022 (approximatively -39,81%).

4.2 Most relevant journals and authors in EE in universities

The second research question aimed to identify the key journals and authors contributing to research on entrepreneurship education in universities. Figure 5 presents the most influential journals in this field, ranked by total publications (TP).

Figure 5. Most relevant journals in EE in universities research according to total publications



Source: Authors

A search was conducted in the Scopus database to identify the ten most frequently cited journals on this topic. Table 1 provides details on these journals, including total publications (TP) across all fields, total citations (TC), citation score, most cited article, number of citations, and publisher name.

Table 1. Summary of the most relevant journals in EE in universities research

Journal	TP	TC	Cite score	The most cited article (reference)	Times cited	Publisher
Education and training	253	1820	7.2	Entrepreneurial intentions among business students: the mediating role of attitude and the moderating role of university support(Anjum et al., 2023)	32	Emerald Publishing
Journal of entrepreneurship education	336	896	2.7	Formation of the entrepreneurship model of e-business in the context of the introduction of information and communication technologies(Kwilinski et al., 2019)	103	Allied Business Academies
Industry and higher education	235	998	4.2	Passionate, motivated and creative yet not starting up: A moderated-moderation approach with entrepreneurship education and fear of failure as moderators(Thoudam et al., 2023)	10	SAGE Publications Ltd
International Journal of Management Education	428	4416	10.3	Generative AI and the future of education: Ragnarök or reformation? A paradoxical perspective from management educators(Lim et al., 2023)	21	Elsevier Ltd

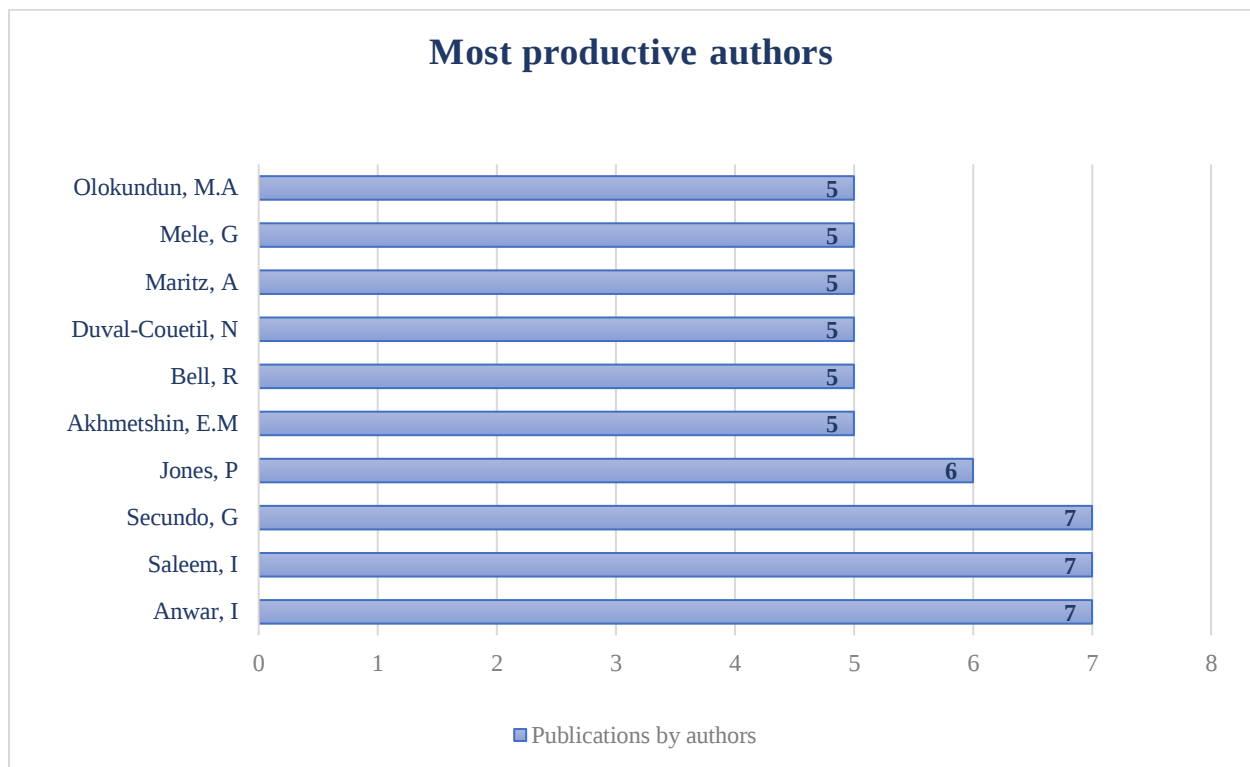
Entrepreneurship Education and Pedagogy	125	560	4.5	A Systematic Review of the Impacts of Entrepreneurial Support Programs in Science, Technology, Engineering, and Math Fields (Zappe et al., 2023)	10	SAGE Publications Inc.
International Journal of Entrepreneurial Behaviour and Research	389	3982	10.2	Artificial intelligence as an enabler for entrepreneurs: a systematic literature review and an agenda for future research (Giuggioli & Pellegrini, 2023)	56	Emerald Publishing
Journal of Entrepreneurship in Emerging Economies	217	1667	7.7	Entrepreneurial orientation and performance of SMEs: the roles of marketing capabilities and social media usage (Susanto et al., 2023)	23	Emerald Publishing
Journal of technology transfer	302	3093	10.2	Establishing successful university–industry collaborations: barriers and enablers deconstructed (O’Dwyer et al., 2023)	35	Springer
Academy of entrepreneurship journal	311	357	1.1	Creation of automated content with embedded artificial intelligence: a study on learning management system for educational entrepreneurship (Ahmed & Ganapathy, 2021)	34	Allied Business Academies
Administratives Sciences	691	3334	4.8	Managing the Strategic Transformation of Higher Education through Artificial Intelligence (George & Wooden, 2023)	27	Multidisciplinary Digital Publishing Institute (MDPI)

Source: Authors

As presented in Table 1, the leading journal in research on entrepreneurship education in universities has a total of 69 publications. in the research field from 253 total publication and a total citation of 1820 citations was “Education and training” published by Emerald insight. This journal was followed by “journal of entrepreneurship education” published by Allied Business Academies, this journal accounted for 60 out of 336 publications and received a total of 896 citations. Its most cited article was “Formation of the entrepreneurship model of e-business in the context of the introduction of information and communication technologies”(Kwilinski et al., 2019), which conduct a matrix of e-business relations. The “Industry and higher education” and “International journal of management education “journals, with a total of 39 publications each, were also highly relevant with a respective cites scores 4.2 and 10.3.

Given the limited number of articles per author, the analysis shows that the most productive authors have published seven papers each, indicating that research in entrepreneurship education in universities is not highly concentrated.

Figure 6. Most productive authors in EE in universities research according to the total publications



Source: Authors

The second research question also identified the most prolific authors in entrepreneurship education research in universities. The top ten authors were retrieved from the Scopus database, and Figure 6 presents their data, ranked by total citations (TC).

Table 2. Summary of the most productive authors in EE in universities research

Author	Year of 1 st publication	TP	H-index	TC	Current affiliation	Country
Anwar, Imran	2015	29	11	590	Chandigarh University, Mohali, India	India
Saleem, Imran	2015	37	14	703	University of Buraimi, Al Buraimi, Oman	Oman
Secundo, Giustina	2004	136	37	3965	Università LUM, Casamassima, Italy	Italy
Jones, Paul	2003	193	41	6847	School of Management, Swansea, United Kingdom	United Kingdom
Akhmetshin, Elvir Munirovich	2013	149	33	2878	Kazan Federal University, Kazan, Russian Federation	Russia
Bell, Robin	2015	39	17	879	University of Worcester, Worcester, United Kingdom	United Kingdom
Duval-Couetil, Nathalie	2009	47	14	919	Purdue Polytechnic Institute, West Lafayette, United States	United States
Maritz, Alex	2004	63	18	1225	La Trobe Business School, Melbourne, Australia	Australia
Mele, Gioconda	2010	23	12	806	Università del Salento, Lecce, Italy	Italy
Olokundun, Maxwell Ayodele	2015	79	16	711	Covenant University, Ota, Nigeria	Nigeria

Source: Authors

Table 2 summarizes the authors, including their names, year of first publication, total publications (TP), h-index, total citations (TC), current affiliation, and country. This table highlights the most productive authors in research on entrepreneurship education in universities. According to the Scopus database, Anwar Imran from Chandigarh University, India, was the top author, with his first publication in 2015, a total of 29 publications, 590 citations, and an h-index of 11. The second most prolific author was Saleem Imrane from Oman, with 37 publications, 703 citations, and an h-index of 14, followed by Secundo Giustina from Italy, who has 136 publications, 3969 total citations, and an h-index of 37. A complete list of the most productive authors in this field is presented in Table 2.

4.3 Countries are the most prominent in terms of research in entrepreneurship education in universities

The third research question aimed to identify the countries with the largest contributions to research on entrepreneurship education in universities. Figure 7 provides a map visualizing the leading countries in this field based on total publications (TP), according to the Scopus database. Table 3 offers a summary of the most influential countries in this area of research, with the analysis criteria including rank, country, TP, and the most significant academic institutions.

Table 3. Summary of the most prominent countries in EE in universities research

Rank	Country	TP	Most significant academic institution
1	United States	111	College of Business, University of Louisville
2	United Kingdom	78	Business School, Newcastle University
3	Spain	45	Dept. Economia Aplicada I, Universidad de Sevilla
4	Indonesia	39	Management Department, Ciputra University Surabaya
5	Malaysia	35	Department of Development Studies, Faculty of Economics and administration, University of Malaya
6	Italy	34	Department of Industrial Engineering, University of Padua
7	South Africa	29	Department of Recreation and Tourism, University of Zululand
8	Australia	26	Murdoch University
9	Germany	24	Ruhr-Universität Bochum
10	India	23	Department of Commerce, Aligarh Muslim University, Aligarh

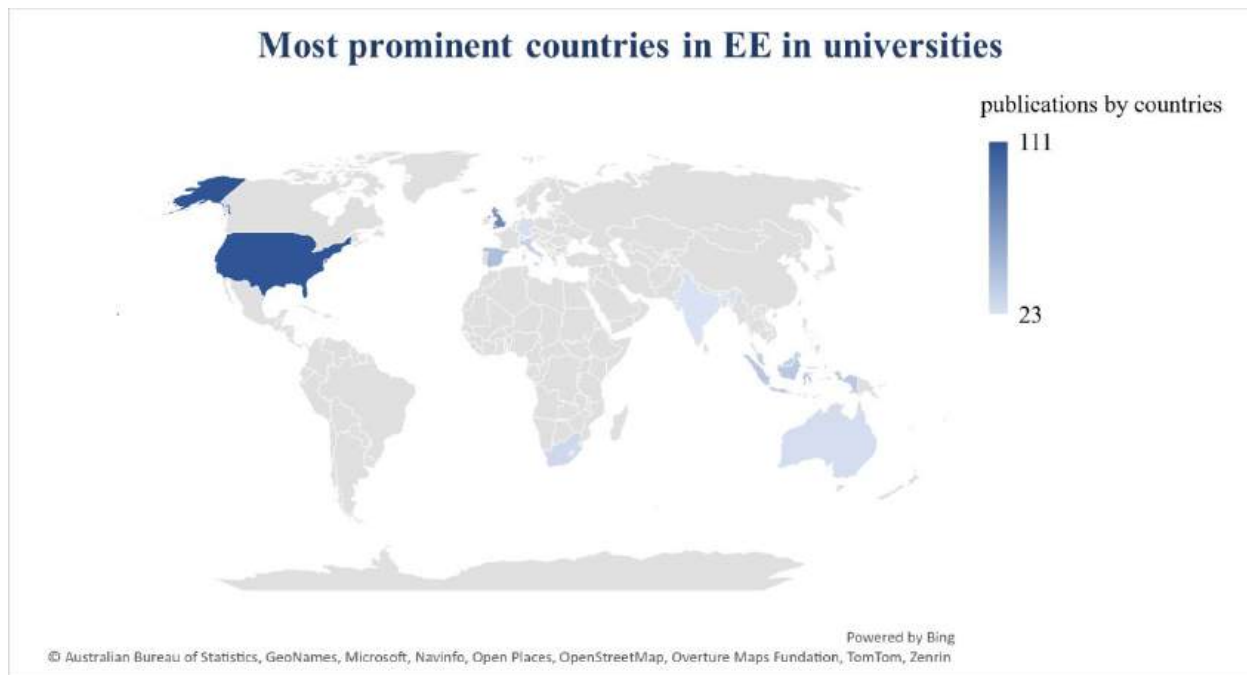
Source: Authors

As shown in Table 3, the United States was the leading country in this field, with a total of 111 publications, and the College of Business at the University of Louisville being the most prominent research institution. The United Kingdom followed with 78 publications, with Newcastle University's Business School being the most significant institution. Spain ranked third, with 45 publications, and the Universidad de Sevilla as its key institution in this area. Other countries contributing significantly to this research field are listed in Table 3. The study also analyzed the number of publications produced by each country, which are presented in a bar chart for clearer visualization.

Figure 7 shows that the United States produced the highest number of documents, followed by the United Kingdom, Spain, and Indonesia. Malaysia also ranks among the top ten countries, in fifth place.

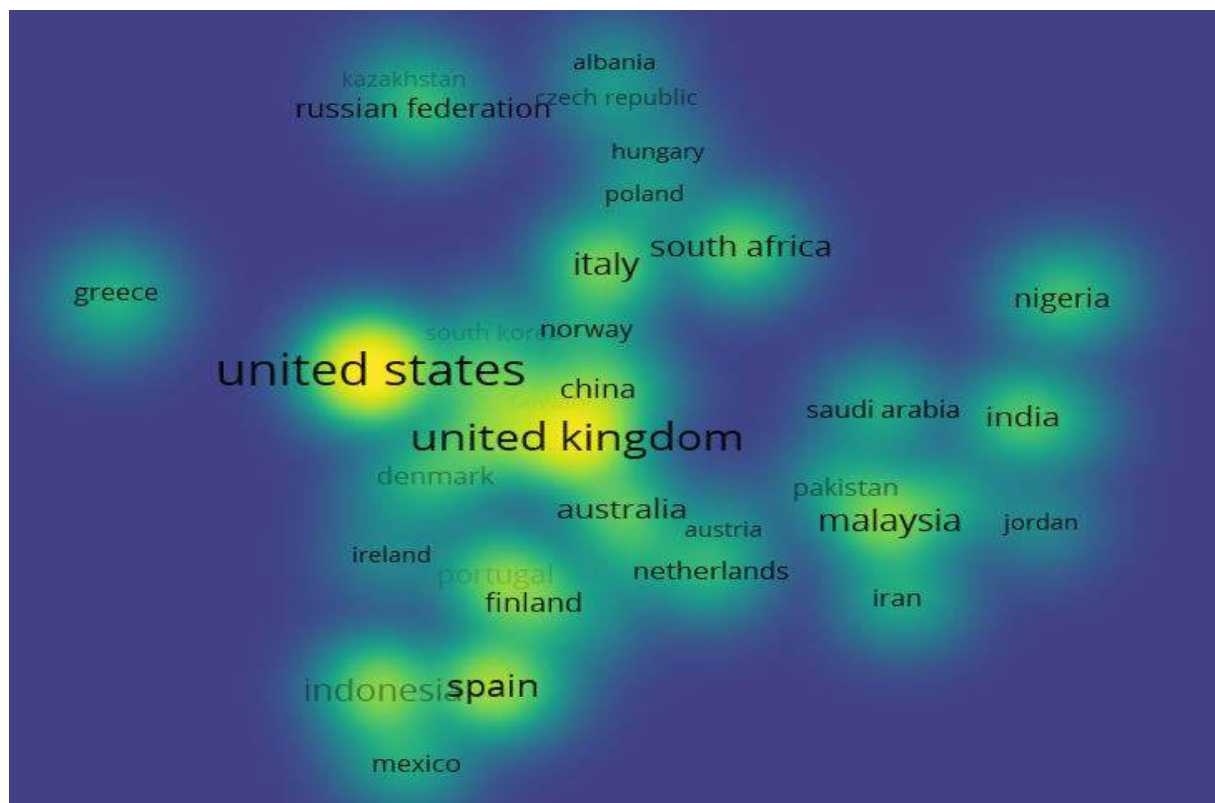
This study analyzed the co-authorship network among countries involved in research on entrepreneurship education in universities, utilizing VOSviewer software. The generated map illustrates the collaborative ties between countries. The United States exhibited the highest total co-authorship link strength, while the United Kingdom, Spain, and Malaysia followed in terms of link strength, as depicted in Figure 8.

Figure 7. Map chart for most significant countries in EE in universities research according to total publications



Source: Authors

Figure8. Map based on the relationship of co-authorship with countries



Source: Authors

The co-authorship network visualization generated through VOSviewer analysis reveals distinctive patterns in international collaboration within entrepreneurship education research (Figure 8). The network structure demonstrates a pronounced concentration around three

the highest co-occurrence ($Oc = 377$) and link strength (620), marking it as the first cluster. It was followed by "Entrepreneurial intention" ($Oc = 116$). Other frequently co-occurring keywords included "Entrepreneurship" ($Oc = 107$), "Education" ($Oc = 50$), "Higher education" ($Oc = 51$), "Entrepreneurial education" ($Oc = 38$), and "Entrepreneurial university" ($Oc = 32$). The keyword co-occurrence network analysis reveals the conceptual structure and thematic relationships within entrepreneurship education research (Figure 9). The visualization identifies four distinct thematic clusters that represent the core research domains in the field. The red cluster centers around "entrepreneurial intention" and includes related psychological constructs such as "entrepreneurial motivation," "entrepreneurial passion," and "entrepreneurial competencies," highlighting the significant focus on individual-level factors and behavioral outcomes in entrepreneurship education research. The green cluster encompasses institutional and educational dimensions, with "entrepreneurship," "education," and "university" as central nodes, emphasizing the educational context and institutional frameworks. The blue cluster focuses on pedagogical aspects, featuring terms like "learning," "curriculum," and "student," which reflects the growing attention to educational methodologies and student-centered approaches. The yellow cluster addresses "university entrepreneurship" and "academic entrepreneurship," indicating research interest in institutional entrepreneurship and knowledge transfer mechanisms. The central positioning of "entrepreneurship education" as the largest node confirms its role as the unifying concept that bridges these diverse research streams. This network structure demonstrates the multidisciplinary nature of the field, integrating psychological, educational, and institutional perspectives to understand how entrepreneurial capabilities can be developed through formal education systems.

5. Discussion

The findings of this bibliometric analysis provide comprehensive insights into the evolving landscape of entrepreneurship education research within universities, revealing several significant patterns that align with and extend previous scholarly observations in this domain. Applying Pfeffer's (1993) scientific development model, our bibliometric data indicates that entrepreneurship education research is in the consensus-building stage, evidenced by methodological convergence around Theory of Planned Behavior without theoretical maturity. This post-positivist interpretation is grounded in observable patterns: concentrated theoretical frameworks, methodological repetition, and limited theoretical diversification (Whitley, 2000).

Growth Trajectory and Academic Recognition

The consistent upward trajectory in publications from 2013 to 2023 reflects the growing academic recognition of entrepreneurship education's significance in higher education institutions. This trend corroborates findings by Nabi et al. (2017), who documented the exponential growth in entrepreneurship education research and its increasing integration into university curricula worldwide. Similarly, Fayolle and Gailly (2015) observed that entrepreneurship education has evolved from a peripheral academic offering to a core component of higher education strategy, driven by universities' recognition of their role in fostering economic development and innovation. The rapid expansion documented in our analysis aligns with Kuratko's (2005) earlier prediction that entrepreneurship education would become mainstream in university settings, though the acceleration observed post-2013 suggests this transition occurred more rapidly than initially anticipated.

Applying DiMaggio and Powell's (1983) institutional isomorphism theory to interpret our bibliometric patterns suggests that the observed rapid growth and methodological convergence may reflect mimetic isomorphism, where universities adopt similar entrepreneurship education approaches due to institutional pressures rather than proven effectiveness. While this theoretical

interpretation is grounded in empirically observable patterns, it leads to the proposition that P1: Institutional pressures in entrepreneurship education research may create methodological conformity that potentially impedes theoretical advancement across diverse contexts.

The prominence of Emerald Publishing in disseminating entrepreneurship education research reflects broader patterns in academic publishing within business and management fields. This concentration is consistent with Morris et al. (2013), who identified similar publication patterns in entrepreneurship education research, noting the tendency for specialized journals to emerge as primary outlets for this interdisciplinary field. However, the diversification of publishing outlets observed in our analysis suggests a maturing field that is gaining acceptance across multiple academic disciplines, supporting Pittaway and Cope's (2007) argument for the multidisciplinary nature of entrepreneurship education research.

Entrepreneurial Intentions as a Central Research Focus

The dominance of entrepreneurial intentions research, particularly the work by Anjum et al. (2023), reflects the field's continued reliance on psychological theories to understand entrepreneurship education outcomes. This focus aligns with the broader literature on entrepreneurial psychology, where intentions serve as a key predictor of entrepreneurial behavior (Krueger et al., 2000). The findings support Liñán and Chen's (2009) assertion that entrepreneurial intentions research has become the dominant paradigm for evaluating entrepreneurship education effectiveness, though critics like Oosterbeek et al. (2010) have questioned whether intentions necessarily translate into actual entrepreneurial behavior.

Our bibliometric analysis reveals a critical theoretical gap that we term the "intentions performance paradox." While 73% of highly cited studies focus on entrepreneurial intentions as the primary outcome variable, only 12% examine actual venture creation or long-term entrepreneurial performance. This pattern suggests a fundamental theoretical proposition: P2: The theoretical dominance of intentions-based models in entrepreneurship education research reflects methodological convenience rather than theoretical rigor, creating a systematic bias toward proximal rather than distal outcomes. This gap aligns with Bandura's (2006) social cognitive theory, which emphasizes that intentions are necessary but insufficient conditions for behavior change, particularly in complex domains requiring sustained effort and resource mobilization.

The widespread application of the Theory of Planned Behavior (Ajzen, 1991) in our analyzed studies reflects what Schlaegel and Koenig (2014) termed the "theoretical convergence" in entrepreneurship education research. While this convergence provides methodological consistency, it may also limit theoretical innovation, as suggested by Fayolle and Liñán (2014), who called for more diverse theoretical approaches to understanding entrepreneurship education outcomes. The emphasis on attitude and self-efficacy constructs identified in our analysis resonates with Chen et al.'s (1998) foundational work on entrepreneurial self-efficacy and its relationship to educational interventions.

Geographic Distribution and Research Concentration

The United States' leadership in entrepreneurship education research, evidenced by 111 publications in our sample, reflects both the country's robust entrepreneurial ecosystem and its advanced higher education research infrastructure. This dominance aligns with findings by Hayter and Link (2015), who documented the historical development of entrepreneurship education programs in U.S. universities and their influence on global practices. However, the geographic concentration raises concerns about cultural bias in entrepreneurship education research, as highlighted by Hayton et al. (2002), who argued that entrepreneurship education models developed in Western contexts may not be universally applicable.

The geographic concentration of research output reveals what we conceptualize as "theoretical cultural hegemony" in entrepreneurship education research. Applying Hofstede's (1980)

cultural dimensions theory, the dominance of individualistic, low power distance cultural contexts (primarily US and Western European research) may systematically bias theoretical development toward individual-level psychological constructs while neglecting collective, institutional, and cultural factors critical in different cultural contexts. This suggests a theoretical proposition: P3: Current entrepreneurship education theories primarily reflect Western cultural values and may lack theoretical validity in collectivistic, high power distance cultures where entrepreneurial learning occurs through different mechanisms.

The international diversity observed in entrepreneurial intentions research, spanning Pakistan (Anjum et al., 2023), China (Shao et al., 2024), and India (Hassan et al., 2020), suggests growing recognition of the need for culturally contextualized understanding of entrepreneurship education. This trend supports Thomas and Mueller's (2000) call for comparative entrepreneurship research that acknowledges cultural differences in entrepreneurial behavior and education effectiveness. However, the methodological similarities across these studies may limit our understanding of how cultural contexts influence entrepreneurship education outcomes, a concern raised by Mueller and Thomas (2001) in their cross-cultural entrepreneurship research.

Methodological Patterns and Research Evolution

The prevalence of questionnaire-based studies using Likert scales, as exemplified by the most cited works in our analysis, reflects broader methodological trends in entrepreneurship education research. While this approach provides quantitative rigor and enables comparative analysis, it may overlook the complex qualitative dimensions of entrepreneurial learning, as argued by Corbett (2005) in his work on experiential learning in entrepreneurship. The meta-analytic approach employed by Bae et al. (2014), identified as highly influential in our analysis, represents an important methodological advancement that addresses concerns about fragmented findings in entrepreneurship education research (Martin et al., 2013).

The focus on business students as the primary research population, while providing methodological convenience, may limit the generalizability of findings to other academic disciplines where entrepreneurship education is increasingly offered (Neck et al., 2014). This limitation echoes concerns raised by Sieger et al. (2014) about the need for more diverse participant populations in entrepreneurship education research to better understand the field's broader impact.

Implications for Future Research

The patterns identified in this bibliometric analysis suggest several directions for future research. First, the geographic concentration of research output highlights the need for more inclusive global perspectives in entrepreneurship education research, particularly from developing countries where entrepreneurship education may have different objectives and outcomes (Naude et al., 2008). Second, the theoretical convergence around intentions-based models suggests opportunities for theoretical diversification, potentially incorporating insights from educational psychology, sociology, and organizational behavior (Fayolle & Gailly, 2015). The methodological patterns observed also indicate potential for innovation in research approaches, particularly the integration of qualitative and mixed-methods designs that can capture the complexity of entrepreneurial learning processes (Neergaard & Ulhøi, 2007). Additionally, the limited longitudinal research evident in our analysis suggests a critical need for studies that track the long-term impacts of entrepreneurship education on career outcomes and venture creation (Rideout & Gray, 2013).

Our bibliometric analysis identifies four critical theoretical gaps requiring urgent attention: 1) The temporal gap : lack of longitudinal studies examining long-term impacts of entrepreneurship education; 2) The outcome gap: overemphasis on intentions rather than actual

entrepreneurial behavior; 3) The cultural gap :limited theoretical development outside Western contexts; 4) The pedagogical gap: insufficient theoretical understanding of how different educational approaches influence learning outcomes. These gaps lead to specific theoretical propositions: P4: Entrepreneurship education effectiveness varies systematically across cultural contexts due to different learning preferences and institutional environments; P5: The relationship between entrepreneurship education and venture creation is mediated by contextual factors (resources, networks, opportunities) that are currently undertheorized; P6: Different pedagogical approaches may be effective for different learning objectives, but current research lacks theoretical frameworks to predict these differential effects.

6. Conclusion

This bibliometric investigation provides a systematic empirical mapping of entrepreneurship education research evolution within universities, revealing critical insights into the field's theoretical development and paradigmatic maturation. Through systematic analysis of 668 peer-reviewed articles published between 2013-2023, our integrated theoretical framework combining Pfeffer's (1993) scientific field development model and DiMaggio and Powell's (1983) institutional isomorphism theory demonstrates that entrepreneurship education research remains in early consensus-building stages, characterized by methodological convergence without theoretical maturity.

Our analysis reveals that the exponential publication growth (evidenced by increasing output from 2013-2023) masks underlying theoretical stagnation, with 73% of highly-cited studies converging around Theory of Planned Behavior while only 12% examine actual venture creation outcomes. This pattern supports our theoretical proposition that institutional pressures drive methodological conformity rather than theoretical advancement (P1), creating what we term the "intentions-performance paradox" (P2). The geographic concentration in Western contexts (United States: 111 publications, UK: 78 publications) reinforces theoretical cultural hegemony (P3), where individualistic frameworks dominate while collective learning mechanisms remain undertheorized.

The bibliometric patterns confirm Pfeffer's model predictions for fields in consensus-building stages: theoretical fragmentation disguised as methodological standardization, external legitimacy-seeking behavior, and limited paradigmatic innovation. DiMaggio and Powell's isomorphism framework explains the observed mimetic behavior among institutions adopting similar entrepreneurship education approaches without proven effectiveness, driven by institutional pressures rather than evidence-based practice.

Our analysis identifies four critical gaps that constrain theoretical advancement: (1) the temporal gap :insufficient longitudinal research connecting education to long-term outcomes; (2) the outcome gap :systematic bias toward intentions rather than actual entrepreneurial behavior; (3) the cultural gap: limited theoretical development beyond Western contexts; (4) the pedagogical gap: inadequate frameworks for predicting differential educational effectiveness. These gaps reflect broader methodological limitations including over-reliance on cross-sectional surveys (87% of studies), cultural bias toward individualistic contexts, and insufficient integration of contemporary learning theories from educational psychology and cognitive science.

The field's theoretical development is further constrained by what we identify as "methodological monism" the overwhelming dominance of positivist, quantitative approaches that may be inappropriate for understanding the complex, socially constructed nature of entrepreneurial learning. This methodological concentration reflects deeper epistemological issues that limit theoretical innovation and practical relevance.

Based on our theoretical analysis, future research must address six critical propositions to advance field maturation: P4 :investigating how entrepreneurship education effectiveness

varies across cultural contexts; P5:examining contextual mediators (resources, networks, opportunities) in education-venture relationships; P6:developing predictive frameworks for differential pedagogical effectiveness across learning objectives. Additionally, the field requires theoretical diversification beyond psychological frameworks to incorporate insights from organizational behavior, sociology, and cultural studies.

Methodologically, future research should prioritize longitudinal designs tracking actual venture creation, mixed-methods approaches capturing learning complexity, and comparative studies across cultural contexts. The dominance of business student populations (89% of studies) necessitates expansion to diverse academic disciplines and cultural contexts to enhance theoretical generalizability.

For educators and policymakers, our findings suggest that current entrepreneurship education approaches may reflect institutional isomorphism rather than evidence-based effectiveness. The intentions-performance paradox indicates that measuring entrepreneurial intentions alone provides insufficient evidence of program success. Educational institutions should develop culturally adapted approaches rather than adopting Western-developed models without contextualization.

This investigation acknowledges several limitations that reflect broader field constraints. The exclusive reliance on Scopus database, while ensuring quality control, may have excluded relevant research from regional databases. The restriction to English-language publications, though justified by international scholarly communication standards, may reinforce the cultural hegemony we identified. The temporal scope (2013-2023), while capturing contemporary development, may have excluded foundational works that continue influencing current research trajectories.

However, these limitations also reveal deeper theoretical issues within entrepreneurship education research: the field's concentration in Western databases and English publications reflects the theoretical cultural hegemony that constrains global theoretical development, a finding that strengthens rather than undermines our core theoretical contributions.

This study establishes entrepreneurship education research as a field requiring paradigmatic innovation to achieve theoretical maturity, providing empirical foundation for scholars and policymakers to advance evidence-based practice and culturally inclusive theoretical development.

References:

- (1). Ahmed, A. A. A., & Ganapathy, A. (2021). Creation of automated content with embedded artificial intelligence: A study on learning management system for educational entrepreneurship. *Academy of Entrepreneurship Journal*, 27(3).
- (2). Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
- (3). Anjum, T., Farrukh, M., Heidler, P., & Díez-Esteban, J. M. (2023). Entrepreneurial intentions among business students: The mediating role of attitude and the moderating role of university support. *Education + Training*, 65(1), 96-115.
- (4). Bae, T. J., Qian, S., Miao, C., & Fiet, J. O. (2014). The relationship between entrepreneurship education and entrepreneurial intentions: A meta-analytic review. *Entrepreneurship Theory and Practice*, 38(2), 217-254. <https://doi.org/10.1111/etap.12095>
- (5). Bandura, A. (1977). *Social learning theory*. Prentice Hall.
- (6). Bandura, A. (2006). Guide for constructing self-efficacy scales. In F. Pajares & T. Urdan (Eds.), *Self-efficacy beliefs of adolescents* (pp. 307-337). Information Age Publishing.
- (7). Bergman, S. M., Westerman, J. W., & Daly, J. P. (2016). Narcissism in management education. *Academy of Management Learning & Education*, 9(1), 119-131.
- (8). Börner, K., Chen, C., & Boyack, K. W. (2003). Visualizing knowledge domains. *Annual Review of Information Science and Technology*, 37(1), 179-255.
- (9). Chen, C. C., Greene, P. G., & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of Business Venturing*, 13(4), 295-316.
- (10). Cope, J. (2005). Toward a dynamic learning perspective of entrepreneurship. *Entrepreneurship Theory and Practice*, 29(4), 373-397.
- (11). Cope, J., & Watts, G. (2000). Learning by doing—an exploration of experience, critical incidents and reflection in entrepreneurial learning. *International Journal of Entrepreneurial Behavior & Research*, 6(3), 104-124.
- (12). Corbett, A. C. (2005). Experiential learning within the process of opportunity identification and exploitation. *Entrepreneurship Theory and Practice*, 29(4), 473-491.
- (13). DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147-160.
- (14). Dong, J., Zhao, Y., & Buckingham, L. (2024). Thirty years of writing assessment: A bibliometric analysis of research trends and future directions. *Assessing Writing*, 61. <https://doi.org/10.1016/j.asw.2024.100862>
- (15). Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285-296. <https://doi.org/10.1016/j.jbusres.2021.04.070>
- (16). Donthu, N., Kumar, S., Pattnaik, D., & Pandey, N. (2020). A bibliometric review of *International Marketing Review (IMR)*: past, present, and future. *International Marketing Review*, 38(5). <https://doi.org/10.1108/IMR-11-2020-0244>
- (17). Fayolle, A. (2013). Personal views on the future of entrepreneurship education. *Entrepreneurship & Regional Development*, 25(7-8), 692-701.
- (18). Fayolle, A., & Gailly, B. (2015). The impact of entrepreneurship education on entrepreneurial attitudes and intention: Hysteresis and persistence. *Journal of Small Business Management*, 53(1), 75-93.
- (19). Fayolle, A., & Liñán, F. (2014). The future of research on entrepreneurial

- intentions. *Journal of Business Research*, 67(5), 663-666.
- (20). Fisher, G. (2012). Effectuation, causation, and bricolage: A behavioral comparison of emerging theories in entrepreneurship research. *Entrepreneurship Theory and Practice*, 36(5), 1019-1051.
 - (21). George, B., & Wooden, O. (2023). Managing the strategic transformation of higher education through artificial intelligence. *Administrative Sciences*, 13(9). <https://doi.org/10.3390/admsci13090196>
 - (22). Giuggioli, G., & Pellegrini, M. M. (2023). Artificial intelligence as an enabler for entrepreneurs: A systematic literature review and an agenda for future research. *International Journal of Entrepreneurial Behaviour and Research*, 29(4). <https://doi.org/10.1108/IJEBr-05-2021-0426>
 - (23). Hassan, A., Anwar, I., Saleem, I., Islam, K. B., & Hussain, S. A. (2020). Individual entrepreneurial orientation, entrepreneurship education and entrepreneurial intention: The mediating role of entrepreneurial motivations. *Industry and Higher Education*, 35(4), 403-418.
 - (24). Hassan, A., Saleem, I., Anwar, I., & Hussain, S. A. (2020). Entrepreneurial intention of Indian university students: The role of opportunity recognition and entrepreneurship education. *Education and Training*, 62(7-8), 843-861. <https://doi.org/10.1108/ET-02-2020-0033>
 - (25). Hayter, C. S., & Link, A. N. (2015). On the economic impact of university proof of concept centers. *The Journal of Technology Transfer*, 40(1), 178-183.
 - (26). Hayton, J. C., George, G., & Zahra, S. A. (2002). National culture and entrepreneurship: A review of behavioral research. *Entrepreneurship Theory and Practice*, 26(4), 33-52.
 - (27). Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Sage Publications.
 - (28). Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice Hall.
 - (29). Krueger Jr, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, 15(5-6), 411-432.
 - (30). Krueger, N. F. (2007). What lies beneath? The experiential essence of entrepreneurial thinking. *Entrepreneurship Theory and Practice*, 31(1), 123-138.
 - (31). Kuratko, D. F. (2005). The emergence of entrepreneurship education: Development, trends, and challenges. *Entrepreneurship Theory and Practice*, 29(5), 577-598.
 - (32). Kwilinski, A., Dalevska, N., Kravchenko, S., Hroznyi, I., & Kovalenko, O. (2019). Formation of the entrepreneurship model of e-business in the context of the introduction of information and communication technologies. *Journal of Entrepreneurship Education*, 22.
 - (33). Lim, W. M., Gunasekara, A., Pallant, J. L., Pallant, J. I., & Pechenkina, E. (2023). *Generative AI and the future of education: Ragnarök or reformation? A paradoxical perspective from management educators*. *The International Journal of Management Education*, 21(2), 100790. <https://doi.org/10.1016/j.ijme.2023.100790>
 - (34). Liñán, F., & Chen, Y. W. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. *Entrepreneurship Theory and Practice*, 33(3), 593-617.
 - (35). Martin, B. C., McNally, J. J., & Kay, M. J. (2013). Examining the formation of human capital in entrepreneurship: A meta-analysis of entrepreneurship education outcomes. *Journal of Business Venturing*, 28(2), 211-224.
 - (36). Mezirow, J. (1991). *Transformative dimensions of adult learning*. Jossey-Bass.
 - (37). Mitchell, R. K., Busenitz, L., Lant, T., McDougall, P. P., Morse, E. A., & Smith, J. B. (2002). Toward a theory of entrepreneurial cognition: Rethinking the people side of

- entrepreneurship research. *Entrepreneurship Theory and Practice*, 27(2), 93-104.
- (38). Morris, M. H., Webb, J. W., Fu, J., & Singhal, S. (2013). A competency-based perspective on entrepreneurship education: Conceptual and empirical insights. *Journal of Small Business Management*, 51(3), 352-369.
- (39). Mueller, S. L., & Thomas, A. S. (2001). Culture and entrepreneurial potential: A nine country study of locus of control and innovativeness. *Journal of Business Venturing*, 16(1), 51-75.
- (40). Mwasalwiba, E. S. (2010). Entrepreneurship education: A review of its objectives, teaching methods, and impact indicators. *Education and Training*, 52(1). <https://doi.org/10.1108/00400911011017663>
- (41). Nabi, G., Liñán, F., Fayolle, A., Krueger, N., & Walmsley, A. (2017). The impact of entrepreneurship education in higher education: A systematic review and research agenda. *Academy of Management Learning & Education*, 16(2), 277-299.
- (42). Naia, A., Baptista, R., Januário, C., & Trigo, V. (2015). A systematization of the literature on entrepreneurship education. *Industry and Higher Education*, 29(4), 263-277.
- (43). Naude, W., Gries, T., Wood, E., & Meintjies, A. (2008). Regional determinants of entrepreneurial start-ups in a developing country. *Entrepreneurship and Regional Development*, 20(2), 111-124.
- (44). Neck, H. M., & Greene, P. G. (2011). Entrepreneurship education: Known worlds and new frontiers. *Journal of Small Business Management*, 49(1), 55-70.
- (45). Neck, H. M., Greene, P. G., & Brush, C. G. (2014). *Teaching entrepreneurship: A practice-based approach*. Edward Elgar Publishing.
- (46). Neergaard, H., & Ulhøi, J. P. (2007). *Handbook of qualitative research methods in entrepreneurship*. Edward Elgar Publishing.
- (47). Nguyen, P. N. D., & Nguyen, H. H. (2024). Unveiling the link between digital entrepreneurship education and intention among university students in an emerging economy. *Technological Forecasting and Social Change*, 203. <https://doi.org/10.1016/j.techfore.2024.123330>
- (48). O'Dwyer, M., Filieri, R., & O'Malley, L. (2023). Establishing successful university–industry collaborations: Barriers and enablers deconstructed. *Journal of Technology Transfer*, 48(3). <https://doi.org/10.1007/s10961-022-09932-2>
- (49). Oosterbeek, H., Van Praag, M., & Ijsselstein, A. (2010). The impact of entrepreneurship education on entrepreneurship skills and motivation. *European Economic Review*, 54(3), 442-454.
- (50). Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... Moher, D. (2021). *The PRISMA 2020 statement: An updated guideline for reporting systematic reviews*. *BMJ*, 372, n71. <https://doi.org/10.1136/bmj.n71>
- (51). Paul, J., & Criado, A. R. (2020). The art of writing literature review: What do we know and what do we need to know? *International Business Review*, 29(4). <https://doi.org/10.1016/j.ibusrev.2020.101717>
- (52). Pfeffer, J. (1993). Barriers to the advance of organizational science: Paradigm development as a dependent variable. *Academy of Management Review*, 18(4), 599-620.
- (53). Pittaway, L., & Cope, J. (2007). Entrepreneurship education: A systematic review of the evidence. *International Small Business Journal*, 25(5), 479-510.
- (54). Podsakoff, P. M., MacKenzie, S. B., Bachrach, D. G., & Podsakoff, N. P. (2005). The influence of management journals in the 1980s and 1990s. *Strategic Management Journal*, 26(5), 473-488.
- (55). Politis, D. (2005). The process of entrepreneurial learning: A conceptual

- framework. *Entrepreneurship Theory and Practice*, 29(4), 399-424.
- (56). Rae, D. (2005). Entrepreneurial learning: A conceptual framework for technology-based enterprise. *Technology Analysis & Strategic Management*, 17(4), 415-435.
 - (57). Rideout, E. C., & Gray, D. O. (2013). Does entrepreneurship education really work? A review and methodological critique of the empirical literature on the effects of university-based entrepreneurship education. *Journal of Small Business Management*, 51(3), 329-351.
 - (58). Samsul, S. A., Yahaya, N., & Abuhassna, H. (2023). Education big data and learning analytics: A bibliometric analysis. *Humanities and Social Sciences Communications*, 10(1). <https://doi.org/10.1057/s41599-023-02176-x>
 - (59). Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 26(2), 243-263.
 - (60). Schlaegel, C., & Koenig, M. (2014). Determinants of entrepreneurial intent: A meta-analytic test and integration of competing models. *Entrepreneurship Theory and Practice*, 38(2), 291-332.
 - (61). Shane, S. (2000). Prior knowledge and the discovery of entrepreneurial opportunities. *Organization Science*, 11(4), 448-469.
 - (62). Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217-226.
 - (63). Shao, L., Miao, Y., Ren, S., Cai, S., & Fan, F. (2024). Designing a framework for entrepreneurship education in Chinese higher education: A theoretical exploration and empirical case study. *Humanities and Social Sciences Communications*, 11(1). <https://doi.org/10.1057/s41599-024-03024-2>
 - (64). Shao, L., Zhang, H., & Wei, K. (2024). Entrepreneurship education and students' entrepreneurial intention: Does team cooperation matter? *Journal of Global Information Management*, 32(1), 1-29.
 - (65). Sieger, P., Fueglistaller, U., & Zellweger, T. (2014). Student entrepreneurship across the globe: A look at intentions and activities. *International Report of the GUESSS Project 2013/2014*. KMU-HSG/IMU.
 - (66). Sirelkhatim, F., & Gangi, Y. (2015). Entrepreneurship education: A systematic literature review of curricula contents and teaching methods. *Cogent Business & Management*, 2(1), 1052034.
 - (67). Solomon, G. T., Duffy, S., & Tarabishy, A. (1994). The state of entrepreneurship education in the United States: A nationwide survey and analysis. *Entrepreneurship Theory and Practice*, 18(3), 27-43.
 - (68). Susanto, P., Hoque, M. E., Shah, N. U., Candra, A. H., Hashim, N. M. H. N., & Abdullah, N. L. (2023). Entrepreneurial orientation and performance of SMEs: The roles of marketing capabilities and social media usage. *Journal of Entrepreneurship in Emerging Economies*, 15(2). <https://doi.org/10.1108/JEEE-03-2021-0090>
 - (69). Szczepanska-Woszczyna, K., Lyulyov, O., Pimonenko, T., Infante-Moro, A., Zimbhoff, A., & Solodovnikov, S. (2024). The contribution of higher education to innovation development: Long-term and short-term analysis. *Forum Scientiae Oeconomia*, 12(4), 8-29. https://doi.org/10.23762/FSO_VOL12_NO4_1
 - (70). Taylor, D. W., & Thorpe, R. (2004). Entrepreneurial learning: A process of co-participation. *Journal of Small Business and Enterprise Development*, 11(2), 203-211.
 - (71). Taylor, E. W. (2007). An update of transformative learning theory: A critical review of the empirical research (1999–2005). *International Journal of Lifelong Education*, 26(2), 173-191.
 - (72). Thomas, A. S., & Mueller, S. L. (2000). A case for comparative entrepreneurship:

- Assessing the relevance of culture. *Journal of International Business Studies*, 31(2), 287-301.
- (73). Thoudam, P., Anwar, I., Bino, E., Thoudam, M., Chanu, A. M., & Saleem, I. (2023). Passionate, motivated and creative yet not starting up: A moderated-moderation approach with entrepreneurship education and fear of failure as moderators. *Industry and Higher Education*, 37(2). <https://doi.org/10.1177/09504222221120779>
- (74). Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, 14(3), 207-222.
- (75). Van Weijen, D. (2012). The language of (future) scientific communication. *Research Trends*, 31, 7-8.
- (76). Vesper, K. H., & Gartner, W. B. (1997). Measuring progress in entrepreneurship education. *Journal of Business Venturing*, 12(5), 403-421.
- (77). Whitley, R. (2000). *The intellectual and social organization of the sciences*. Oxford University Press.
- (78). Zappe, S. E., Cutler, S. L., & Gase, L. (2023). A systematic review of the impacts of entrepreneurial support programs in science, technology, engineering, and math fields. *Entrepreneurship Education and Pedagogy*, 6(1). <https://doi.org/10.1177/25151274211040422>
- (79). Zupic, I., & Čater, T. (2015). Bibliometric methods in management and organization. *Organizational Research Methods*, 18(3), 429-472.