

Mapping the Scholarly Landscape of Entrepreneurship Education Research in Higher Education Institutions: A Comprehensive Bibliometric Overview

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This study aims to assess the trends of entrepreneurship education research in higher education between 1993 and 2022 using bibliometric analysis. A total of 1309 seminal articles were identified from the Scopus database and used advanced bibliometric tools for analysis. The research findings revealed that the United States and the United Kingdom had taken the lead in entrepreneurship education research. Notably, author Bell R emerged as a prominent figure in this field. By scrutinizing the articles, it was also evident that keywords such as entrepreneurship education, business education, entrepreneurship, entrepreneurial intention, and entrepreneurial education hold significance within the domain. The insights gleaned from this analysis suggest valuable strategic information to researchers and aid them in formulating and mapping out future studies in entrepreneurship education.

Keywords: entrepreneurship education, entrepreneurial intention, higher education, bibliometric analysis, Bibliometric

INTRODUCTION

Entrepreneurship education has gained significant prominence in higher education institutions worldwide, driven by the recognition of its potential to foster innovation, economic growth, and job creation (Balawi & Ayoub, 2022; Uddin et al., 2022). With the evolving global business landscape and the increasing demand for entrepreneurial skills, universities and colleges are increasingly integrating entrepreneurship education into their curricula (Regele & Neck, 2012; Wilson, 2008). This shift is fueled

by the understanding that traditional academic disciplines alone may not adequately prepare students to navigate the challenges and complexities of today's dynamic business environment. Entrepreneurship education goes beyond teaching students how to start their businesses. It encompasses a comprehensive set of knowledge, skills, and attitudes that empower individuals to identify opportunities, take calculated risks, innovate, and create value in various contexts (Morris et al., 2013; Valerio et al., 2014). It equips students with the entrepreneurial mindset and competencies necessary to adapt to rapidly changing market conditions, drive organizational growth, and contribute to societal development (Daniel, 2016; Kooskora, 2021).

Moreover, the benefits of entrepreneurship education are manifold. It nurtures creativity and critical thinking, encouraging students to explore new ideas and solutions to real-world problems (Hawari-Latter et al., 2021). It cultivates an entrepreneurial mindset that embraces innovation, resilience, and resourcefulness. Moreover, entrepreneurship education instills essential skills such as business planning, financial management, marketing, and leadership, transferable across different career paths (Bosman & Fernhaber, 2021; Kouakou et al., 2019). Furthermore, entrepreneurship education fosters an entrepreneurial culture within higher education institutions, promoting collaboration, interdisciplinary learning, and networking opportunities (Davey et al., 2016; Wilson, 2008). It encourages students to engage with industry professionals, mentors, and fellow entrepreneurs, fostering valuable connections and providing access to valuable resources and support networks (Binks et al., 2006; Welsh & Dragusin, 2013). This ecosystem enables students to test their ideas, refine their business models, and gain practical experience while still in an educational setting. Furthermore, in the era of technological advancements and economic uncertainty, entrepreneurship education equips students with the tools and knowledge they need to thrive in a rapidly changing world. By embedding entrepreneurship education within higher education institutions, universities, and colleges are not only preparing students for successful careers but also cultivating a generation of innovative thinkers, problem solvers, and change-makers who can drive economic growth and social progress.

In recent times, a discernible surge has emerged in establishing new enterprises by young, well-educated individuals. This entrepreneurial upswing is underpinned by multifaceted motivations (Sher et al., 2020). Primarily, a fervent drive exists to innovate and introduce novel concepts within the business landscape. Additionally, the intrinsic gratification derived from business engagement assumes a pivotal role, enhancing mental well-being and contributing significantly to a venture's triumph. Furthermore, the pursuit of accomplishment and personal evolution, as underscored by Pacut, (2020), acts as a potent catalyst, intertwining self-growth with business advancement. Notably, an altruistic inclination towards positively impacting others is a significant pillar in entrepreneurial success. These amalgamated drivers collectively epitomize the propelling forces that underlie and propel business endeavors in contemporary times.

Entrepreneurship education has experienced a notable surge in research interest and exploration in recent years. Scholars and researchers have increasingly focused on understanding the dynamics of entrepreneurship education, its impact on fostering entrepreneurial mindsets, and its role in driving innovation and economic growth. This growing interest underscores a broader recognition of the pivotal role that entrepreneurship education plays in equipping individuals with the skills and mindset necessary to navigate the complexities of the modern business landscape. As a result, a burgeoning body of research delves into diverse aspects, ranging from curriculum design and pedagogical approaches to assessing the effectiveness of entrepreneurship education programs in nurturing the next generation of innovative and enterprising leaders. However, despite the wealth of research, there is still a need for a systematic review of the literature to identify key research gaps and emerging trends. This paper aims to conduct a bibliometric analysis of the literature on entrepreneurship education, using a range of bibliometric tools and techniques to identify patterns and trends in the research and also analyze the publication outputs, citation patterns, and collaboration networks of authors and institutions to gain insights into the most active areas of research and the most influential authors and institutions. This analysis also focuses on identifying gaps in the literature and areas where further research is needed. Overall, this bibliometric analysis will provide a comprehensive overview of the research landscape on entrepreneurship education by highlighting key

trends, knowledge gaps, and emerging research areas. This information can be used by researchers, practitioners, and policymakers to identify opportunities for further research and to inform decision-making in higher education institutions.

MATERIALS AND METHODS

Data Source

Using bibliometric tools has proven invaluable in understanding the breadth and depth of academic research in specific disciplines. This systematic approach involves evaluating research publications within a selected database over a defined period to assess their impact on existing knowledge (Mantry et al., 2023; Singh, Sibi, & Sharma, 2021; Singh, Sibi, Yost, et al., 2021). Researchers utilize bibliometrics to gain insights into the scope of a subject, the evolution of research in central and peripheral areas, research collaborations, and the identification of patterns and emerging trends (Rai et al., 2020). By delineating the body of research and quantitatively analyzing publication and citation counts, bibliometrics facilitates the quantitative analysis and description of literature across various academic fields (Zhang et al., 2021). For this specific study, the researchers selected the Scopus database as their research database. Scopus is widely recognized as one of the most comprehensive databases for peer-reviewed literature (Bartol et al., 2014). It enjoys a strong reputation within the research community for its reliability (Niñerola et al., 2021) and is considered an essential resource in the systematic review process due to the scope and quality of studies available (Moher et al., 2010). The choice of Scopus ensures access to a reputable and extensive collection of research literature.

Search Strategy

The authors utilized an advanced search on the Scopus database, employing keywords such as (“entrepreneurship education” OR “entrepreneurial education” OR “entrepreneurship curriculum,” OR “entrepreneurial skills” OR “start-up education” OR “business education” OR “entrepreneurship pedagogy” AND university OR college) to obtain relevant results. This initial search yielded a total of 4023 records. To refine the search, the authors further narrowed down the results by restricting the time frame from 1993 to 2022, focusing on journals publishing articles in the English language within the social science and arts and humanities subject areas. Consequently, this refinement resulted in 1376 scholarly published articles eligible for bibliometric analysis. Through an extensive screening process based on the relevance of titles, abstracts, and keywords related to entrepreneurship education in higher education institutions, a final selection of 1309 articles was made. This systematic approach ensured a rigorous focus on scholarly research within the field, facilitating a comprehensive understanding of the topic.

Data Analysis

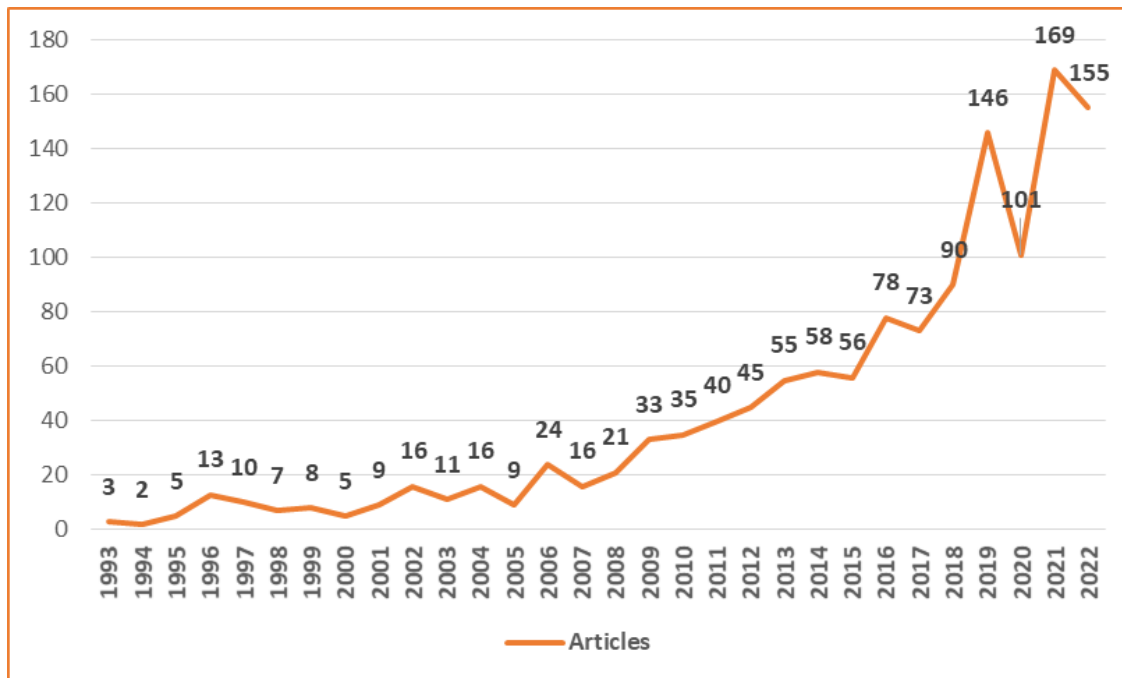
The data analysis process was executed by using bibliometrix R Package and VOS viewer, a tool that facilitated the extraction and analysis of data. The analysis findings were then presented and organized through performance analysis and science mapping techniques. The presentation sequence encompassed several key indicators commonly used in bibliometric analysis, including annual scientific production, the most prolific journal, prominent scholars, and countries contributing to the research, institutions involved, highly impactful articles, author’s keywords, intellectual structure, and social structure. These indicators are widely employed by researchers conducting bibliometric analyses and have been utilized in previous studies (Bashir & Singh, 2023; Kumar et al., 2020; Mulet-Forteza et al., 2019; Singh et al., 2023). These indicators are crucial in mapping the scientific contributions within the field, offering valuable insights into publication trends, influential sources, notable authors, significant references, key topics, and the interconnections between different research areas. By employing these indices, the study aimed to comprehensively understand the academic research output in the specific field under investigation.

FINDINGS

Annual Scientific Production of Publications

Figure 1 depicts the detailed distribution of scientific publications year by year, spanning from 1993 to 2022, aiming to provide insights into the comprehensive scientific progress of entrepreneurship education research in higher education. During this extensive time frame, a total of 1309 articles were published. From 1993 to 2008, the growth rate of publications exhibited inconsistency. However, starting in 2009, there was a noticeable and consistent acceleration in the rate of publications. This indicates a growing interest and emphasis on entrepreneurship education research within higher education. The period between 2018 and 2022 emerged as the most productive year in entrepreneurship research in higher education, accounting for an impressive 50.49 percent of the total publications. This highlights a significant surge in scholarly activity and advancements during this period, suggesting a heightened focus on understanding and enhancing entrepreneurship education within the academic realm. Notably, 2021 stands out as the most prolific year in this research domain, with a contribution of 169 articles alone. This indicates a peak in scholarly output, showcasing the intensive efforts dedicated to entrepreneurship education research during that particular year. Following closely behind is 2022, which contributed 155 articles, further demonstrating the sustained momentum in the field.

FIGURE 1
ANNUAL SCIENTIFIC PRODUCTION OF PUBLICATIONS

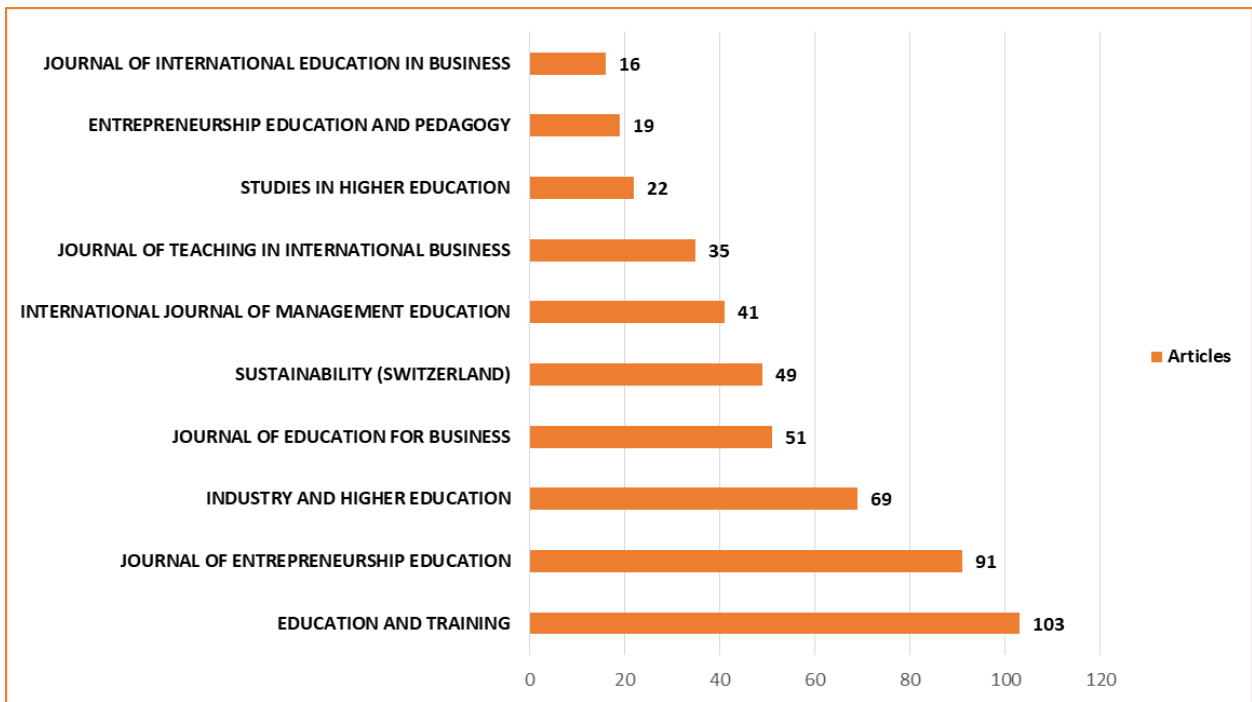


Publication Trends of Journals

Figure 2 extensively compiles the top ten journals that have published groundbreaking research articles on entrepreneurship education in higher education institutions, encompassing various contexts. Notably, the Education and Training journal has claimed the first position with an impressive count of 103 scientific publications. This accomplishment highlights the journal's indispensable role in advancing research and scholarly work in this field. Other prominent journals in the list include the Journal of Entrepreneurship Education, Industry and Higher Education, and the Journal of Education for Business, which have published

91, 69, and 51 research articles respectively. Their significant contributions underscore their influence in shaping the landscape of entrepreneurship education research in academia.

FIGURE 2
PUBLICATION TRENDS OF JOURNALS



Most Impactful Authors, Institutions, and Countries

Table 1 provides a comprehensive overview of the influential authors, institutions, and countries in entrepreneurship education research within higher education institutions. These metrics serve as key indicators in bibliometric analysis, aiding practitioners and researchers in identifying and fostering a collaborative and supportive academic environment within a specific domain. Upon analyzing the final dataset, a total of 3184 authors were identified. Securing the top position in the list, Bell R exhibits the highest h-index, g-index, and number of publications. Following closely behind, Anwar I and Saleem I hold the second and third positions, respectively, with an equal number of h-index and publications. However, regarding the highest number of citations, Galloway L occupies the top spot with 367 citations. Regarding the most productive countries in entrepreneurship education research, the United States emerges as the leader with 2497 citations and 717 publications. The United Kingdom follows closely with 1553 citations and 262 publications. These findings underscore the significant contributions made by researchers from these countries in advancing the field. Furthermore, the most impactful institutions in entrepreneurship education research were identified as Universiti Kebangsaan Malaysia and Universitas Negeri Jakarta, holding the first and second positions, respectively, with 22 and 20 publications. These institutions have played a crucial role in advancing research and scholarship in this domain, highlighting the importance of academic institutions in driving innovation and progress in the field.

TABLE 1
MOST IMPACTFUL AUTHORS, INSTITUTIONS AND COUNTRIES

Author	h_index	g_index	m_index	TC	NP	PY_start
BELL R	8	10	1	281	10	2016
ANWAR I	6	6	1.5	174	6	2020
SALEEM I	6	6	1.5	174	6	2020
AKHMETSHIN EM	5	5	1	87	5	2019
GALLOWAY L	5	5	0.227	367	5	2002
HANNON PD	5	5	0.25	274	5	2004
RAE D	5	5	0.263	108	5	2005
YOUSEF DA	5	6	0.313	77	6	2008
CUI J	4	4	0.444	129	4	2015
ETZKOWITZ H	4	4	0.19	79	4	2003

Institution	Articles
UNIVERSITI KEBANGSAAN MALAYSIA	22
UNIVERSITAS NEGERI JAKARTA	20
ALIGARH MUSLIM UNIVERSITY	18
UNIVERSITI PUTRA MALAYSIA	18
UNIVERSITI TEKNOLOGI MARA	16
WENZHOU MEDICAL UNIVERSITY	16
UNIVERSITI TUN HUSSEIN ONN MALAYSIA	15
UNIVERSITY OF EASTERN FINLAND	14
ZHEJIANG UNIVERSITY	14
UNIVERSITY OF ORADEA	13

Country	Freq	TC
USA	717	2497
UK	262	1553
CHINA	232	718
MALAYSIA	221	598
SPAIN	174	641
INDONESIA	162	83
AUSTRALIA	159	953
NIGERIA	88	42
CANADA	76	199
SOUTH AFRICA	75	83

Most Impactful Articles

This section presented the most impactful articles that have emerged across various scholarly journals, this is one of the major indicators which categorize publications according to their citation count. The number of citations serves as a powerful metric, showcasing the impact, recognition, and interest garnered

from the scientific community within entrepreneurship research in higher education. A detailed presentation of the top ten most impactful papers is reflected in Table 2. From this list, the research paper published by Kolvereid & Moen (1997) occupied the top position with 321 citations. This article examined the behavioral differences between business graduates majoring in entrepreneurship and graduates with other majors from a Norwegian business school. The findings revealed that individuals with an entrepreneurship major demonstrated a higher propensity to initiate new ventures and exhibited stronger entrepreneurial intentions than their counterparts. The study also emphasized the significance of incorporating entrepreneurship education within universities and business schools, highlighting the scarcity of research on the impact of entrepreneurship education. Bolton & Lane (2012) published a second highly cited article, which received 314 citations. Their study focused on constructing a measurement tool, known as the Individual Entrepreneurial Orientation (IEO), to assess the entrepreneurial inclination of students and individuals. Through a rigorous scale development process, the authors identified three distinct factors, namely innovativeness, risk-taking, and proactiveness, which exhibited strong reliability and validity. These factors were found to be statistically correlated with measures of entrepreneurial intention. Gurol & Atsan (2006) published an article that garnered 285 citations and ranked third in impact. This quantitative study aimed to explore the entrepreneurship profile of Turkish university students and evaluate their entrepreneurship orientation by comparing them with non-entrepreneurially inclined students. The study examined six traits: need for achievement, locus of control, risk-taking propensity, and tolerance for ambiguity, innovativeness, and self-confidence. The findings revealed that, except for tolerance for ambiguity and self-confidence, all entrepreneurial traits were significantly higher in entrepreneurially inclined students compared to their non-inclined counterparts. Specifically, entrepreneurially inclined students exhibited higher risk-taking propensity, internal locus of control, need for achievement, and innovativeness.

TABLE 2
MOST IMPACTFUL ARTICLES

Title	Author	Total Citations	TC per Year
Entrepreneurship among business graduates: does a major in entrepreneurship make a difference?	Kolvereid & Moen (1997)	321	11.89
Individual entrepreneurial orientation: development of a measurement instrument	Bolton & Lane (2012)	314	26.17
Entrepreneurial characteristics amongst university students: Some insights for entrepreneurship education and training in Turkey	Gürol & Atsan (2006)	285	15.83
A contemporary approach to entrepreneurship education	Jones & English (2004)	269	13.45
Entrepreneurship education at university: a driver in the creation of high growth firms?	Galloway & Brown (2002)	262	11.91
The impact of entrepreneurship education, entrepreneurial self-efficacy and gender on entrepreneurial intentions of university students in the Visegrad countries	Nowiński et al. (2019)	236	47.20
The effects of attitudes and perceived environment conditions on students' entrepreneurial intent: An Austrian perspective	Schwarz et al. (2009)	227	15.13
Does entrepreneurship education in the first year of higher education develop entrepreneurial intentions? The role of learning and inspiration	Nabi et al., (2018)	183	30.50

Title	Author	Total Citations	TC per Year
Creating Conducive Environments for Learning and Entrepreneurship: Living with, Dealing with, Creating and Enjoying Uncertainty and Complexity	Gibb (2002)	157	7.14
Measuring the impact of business management Student's attitude towards entrepreneurship education on entrepreneurial intention: A case study	Jena (2020)	145	36.25

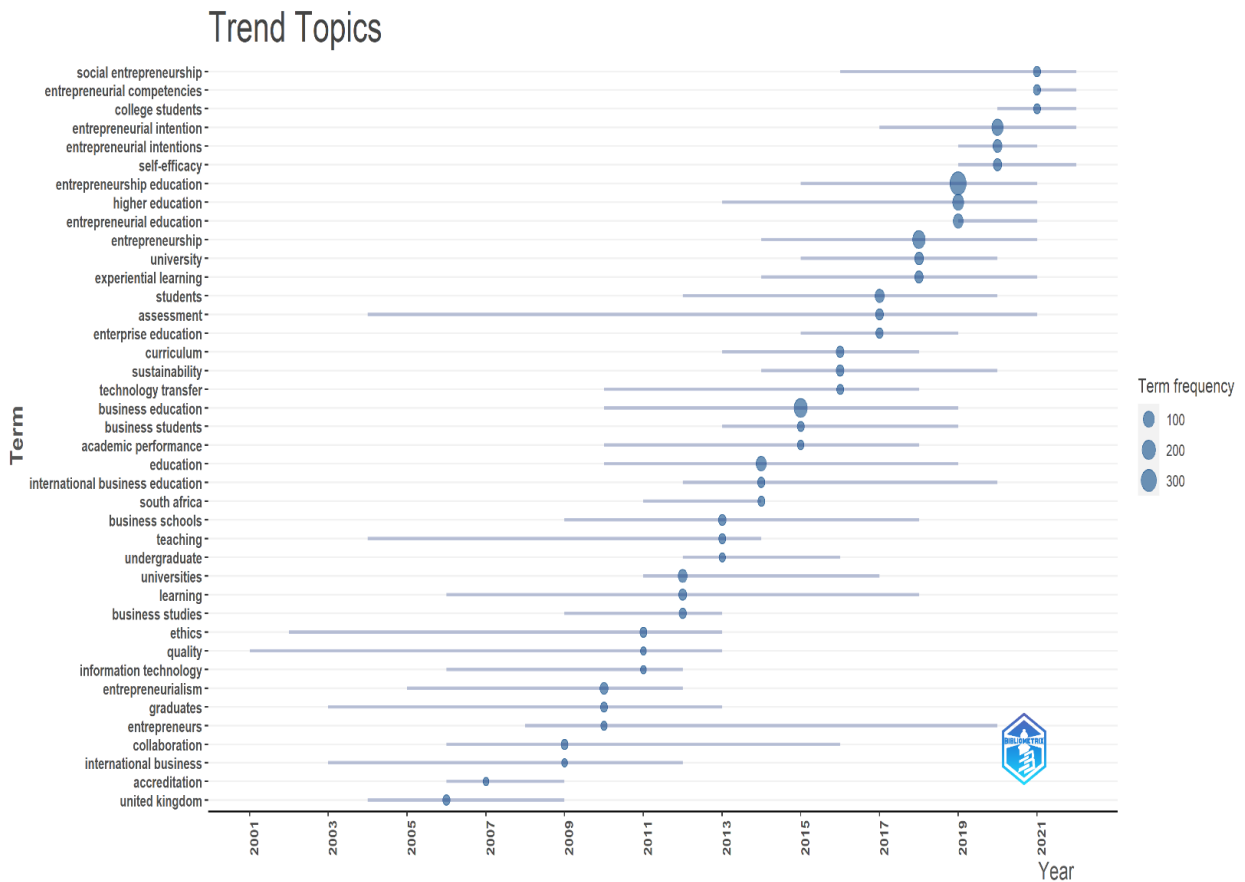
Author's Keywords and Trend Topic Analysis

The word cloud depicted in Figure 3 captures the author's chosen keywords from their research spanning 1993 and 2022. A total of 2931 distinct keywords were employed, which occurred 5917 times. Notably, the keywords that surfaced most frequently were "entrepreneurship education," "business education," "entrepreneurship," "entrepreneurial intention," and "entrepreneurial education." However, the word cloud alone merely demonstrates a gradual accumulation of these keywords and lacks substantial insight. A trend theme analysis was employed to gauge the varying degrees of popularity over different periods to delve deeper into the evolution of ideas in published works. This analysis involved logarithmic frequencies assigned to various terms across the articles. Figure 4 provides an elaborate summary of the current trending themes. Upon examination, it becomes apparent that terms such as "entrepreneurship education" (362), "business education" (192), "entrepreneurship" (162), "entrepreneurial intention" (113), "entrepreneurial education" (64), "entrepreneurial intentions" (40), "social entrepreneurship" (13), and "entrepreneurial competencies" (13) have been recurrently utilized. In essence, this comprehensive analysis sheds light on the prevalent ideas within the published works, showcasing the noteworthy popularity of specific terms over time.

FIGURE 3
WORD CLOUD OF AUTHOR'S KEYWORDS



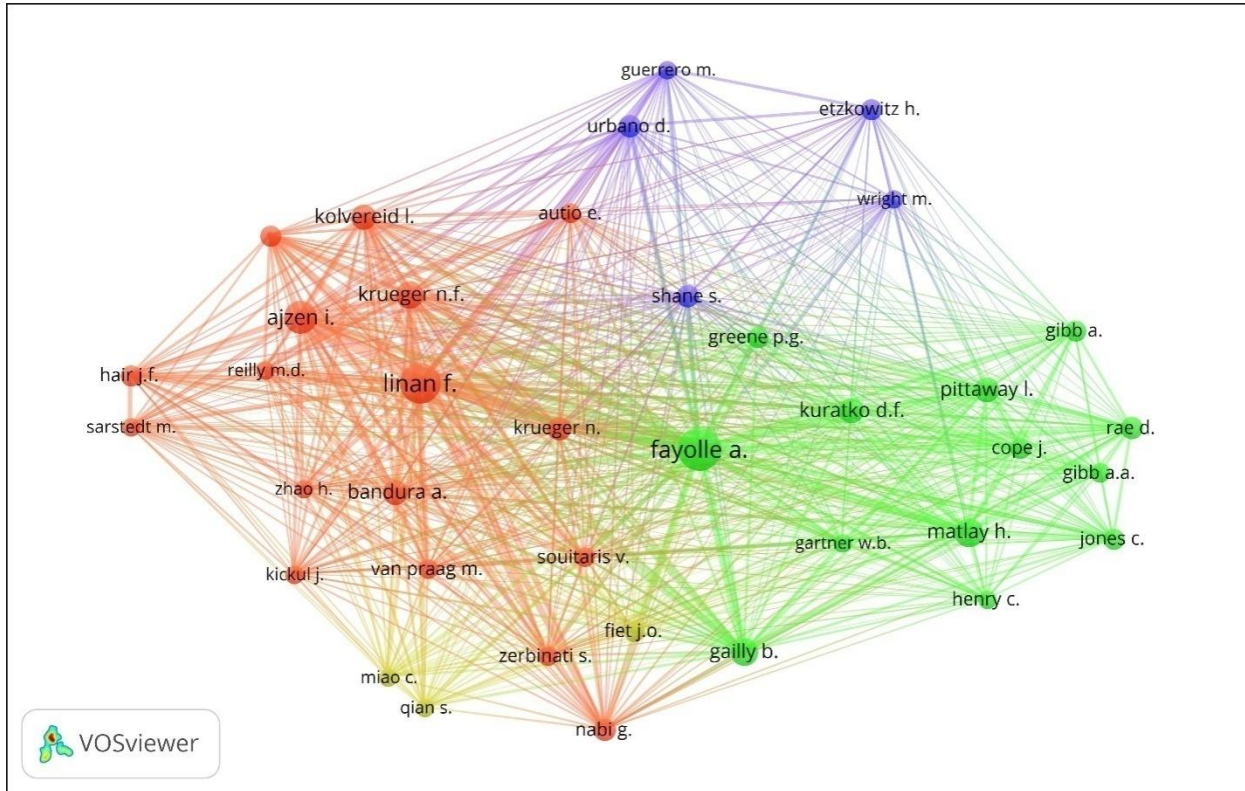
**FIGURE 4
TREND TOPICS**



Intellectual Structure

Assessing the intellectual structure of knowledge is essential for understanding the impact of authors’ work within the scientific community (Sharma et al., 2021). co-citation analysis is one of the widely used techniques in bibliometrics for uncovering intellectual linkages (Small, 1999). This method assists in identifying pairs of documents that are frequently cited together in a third document (Donthu et al., 2021). The underlying assumption is that publications cited together often share similar themes (Surwase et al., 2011) and, as a result, tend to form clusters in visualization maps (Mas-Tur et al., 2021). This study as shown in Figure 5, confirms the existence of four clusters with 40 authors. The top ten co-cited authors are Fayolle A. (699 citations, 12549 link strength), Linan F. (596 citations, 11753 link strength), Azen I. (382 citations, 7067 links), Krueger N.F. (289 citations, 5687 links), Gailly B. (272 citations, 5272 links), Kolvereid L. (221 citations, 5066 links), Matlay H. (295 citations. 4641 links), Krueger N. (208 citations, 3893 links), Nabi G. (193 citations, 3831 links), Bandura A. (227 citations, 3715 links, Pittaway L. (225 citations, 3702 links) and Urbano D. (184 citations, 3308 links).

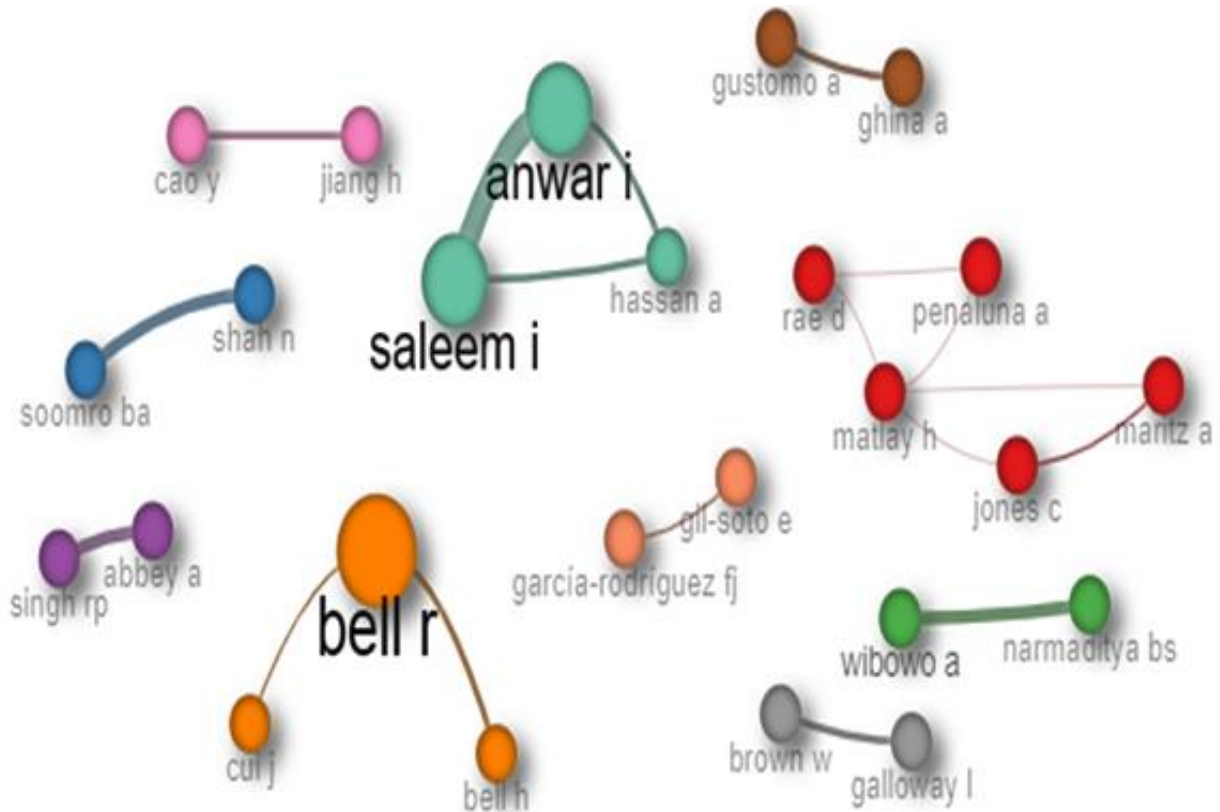
FIGURE 5
CO-CITATION NETWORK OF AUTHORS



Social Structure

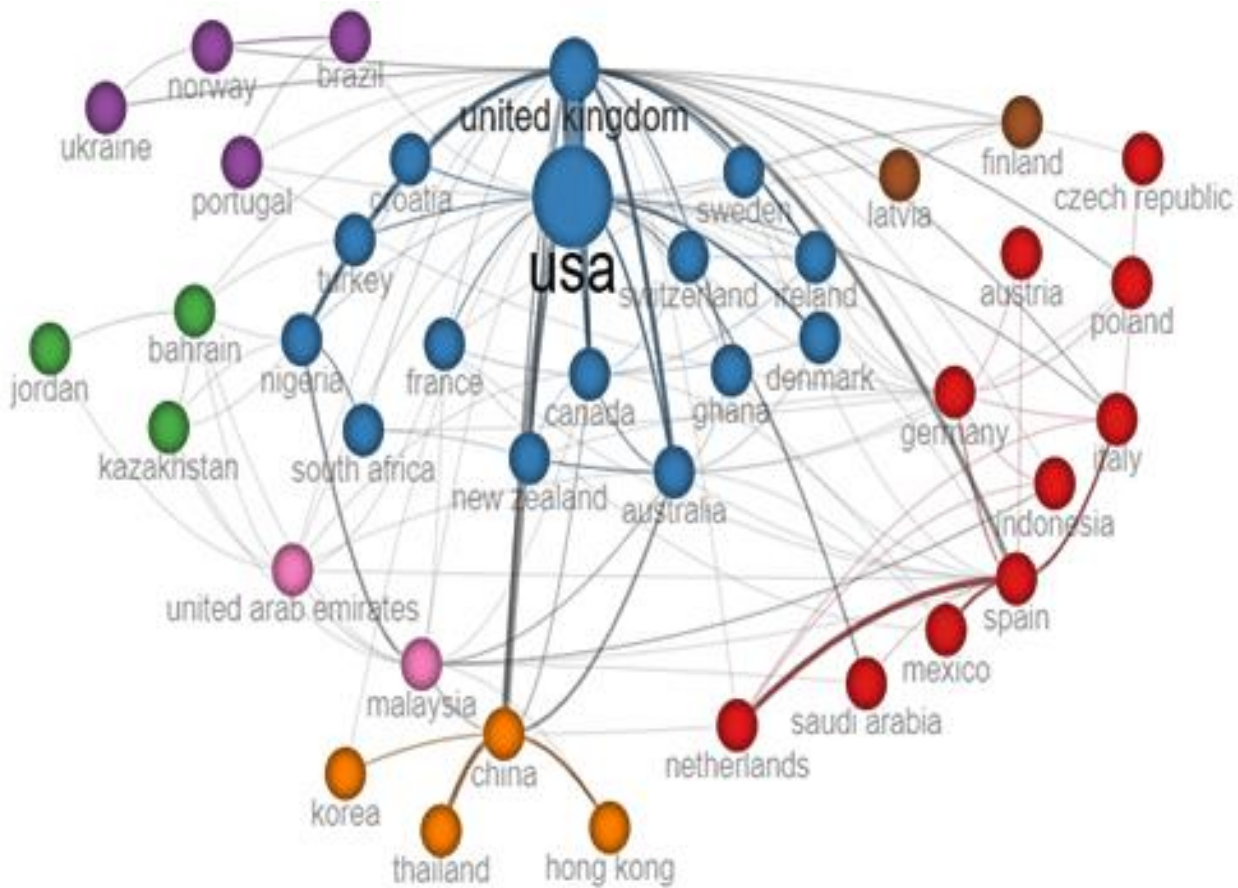
To determine a topic’s social structure, it is necessary to analyze their cooperation network. The research of collaboration networks helps to discover structures like regular study groups, hidden groups of academics, and key authors (Aria & Cuccurullo, 2017). The research groups are representative of the many social groupings that may be found in the region which has been examined. Figure 6 represents the author’s collaboration network consisting of ten distinct clusters. The study groups have not been connected comprehensively concerning their social structures, which indicates that the cooperation between the various research groups is not particularly robust. It has been determined that the authors who contributed to the clusters worked together on publishing more than one publication. For instance, Matlay H, Jones C, Maritz A, Rae D, and Penaluna A have strong collaboration due to the publishing frequency within their network of colleagues. It can be observed that writers such as Matlay H, Jones C, Maritz A, Rae D, and Penaluna A are actively participating in their social structure.

FIGURE 6
AUTHORS COLLABORATION NETWORK



The international cooperation networks between countries are shown in Figure 7, which consists of seven clusters. The countries that make up Cluster 1 (red) are as follows: Poland, Netherlands, Saudi Arabia, Mexico, Spain, Indonesia, Italy, Germany, Austria, and Czech Republic. Cluster 2 (orange), and cluster 3 (purple) consist of four countries each, cluster 4 (green) contains only three countries and cluster 5 (pink), and cluster 6 (brown) consist of two countries each. At the same time, cluster 7 (blue) consists of fifteen countries. The USA is the most influential nation in this group, which is the biggest cluster in the collaboration network. The results of this investigation suggest that the USA and the United Kingdom are likely to be regarded as the most influential countries in entrepreneurship research. The most productive nations, shown in Table 1, are ranked from most productive to least productive. The USA is ranked highest, followed by the United Kingdom. It can be assumed that most prestigious higher education institutions are found in the United States, and the United Kingdom contributes to this predicament.

FIGURE 7
COUNTRY COLLABORATION NETWORK



DISCUSSION AND CONCLUSION

Examining the existing scholarly works serves as a fundamental approach to illuminate the present landscape of research and offer valuable insights for future investigations, thereby fostering the advancement of the field. The present study identifies a noteworthy gap in comprehensively comprehending the conceptual and intellectual bedrock within entrepreneurship education research as applied in higher education establishments. Addressing this gap, the current research adopts a discerning and interconnected perspective to scrutinize entrepreneurship education research within the realm of higher education institutions to capture evolving patterns, foundations, and the structural essence of this domain. The findings of the annual scientific production of publications underscore the evolution and burgeoning importance of entrepreneurship education research in higher education over the examined period from 1993 to 2022. Notably, the trajectory reveals a remarkable shift in scholarly attention, with a noticeable inflection point occurring in 2009, signifying an accelerating and sustained growth in publications. The years between 2018 and 2022 emerge as a zenith of scholarly output, constituting over half of the total publications, indicative of a concentrated surge in academic exploration and advancement within the entrepreneurship education domain. Remarkably, the year 2021 emerges as a pinnacle year, boasting the highest number of contributions, underlining an intensified dedication to comprehensively understanding and enriching entrepreneurship education. This collective pattern of heightened scholarly activity and focus highlights the transformative role of entrepreneurship education in higher education and its enduring relevance as a subject of study and innovation.

In the context of entrepreneurship education within higher education institutions, the *Education and Training* journal stands out by leading with an impressive count of 103 scientific publications, showcasing its vital role in advancing scholarly research. Alongside, the *Journal of Entrepreneurship Education*, *Industry and Higher Education*, and the *Journal of Education for Business* contribute significantly with 91, 69, and 51 research articles, respectively. These prominent journals collectively underscore the growing significance of entrepreneurship education as a field of study and practice. Their extensive compilation of groundbreaking research articles reflects the increasing recognition of the importance of fostering entrepreneurial mindsets and skills within higher education institutions and highlights the diverse contexts in which this education is being explored. As they continue to publish cutting-edge research, these journals play a pivotal role in shaping pedagogical approaches and driving innovation, industry collaboration, and economic growth by cultivating future entrepreneurs and leaders.

The findings of the most impactful research articles reflect the most cited scholarly work in the domain of entrepreneurship education. Key papers with notable citation counts illuminate the significant strides made in this field, reflecting the depth of recognition and resonance within the scientific community. A paper titled “Entrepreneurship among business graduates: does a major in entrepreneurship make a difference?” is recognized as a highly cited research work in this domain, with 321 citations. The study explored the behavioral disparities between business graduates specializing in entrepreneurship and those from other disciplines at a Norwegian business school, and the findings highlighted the greater inclination of entrepreneurship majors towards initiating new ventures and underscored the need for enhanced entrepreneurship education. Similarly, the paper “Individual entrepreneurial orientation: development of a measurement instrument” occupied second position in this list with 314 citations. The study focused on constructing a measurement tool, known as the Individual Entrepreneurial Orientation (IEO), to assess the entrepreneurial inclination of students and individuals. Through a rigorous scale development process, the authors identified three distinct factors, namely innovativeness, risk-taking, and proactiveness, which exhibited strong reliability and validity. These factors were found to be statistically correlated with measures of entrepreneurial intention.

The author’s keyword analysis results have unveiled the most prevalent terms within the realm of entrepreneurship education research. This particular metric is a pivotal parameter for discerning the emerging research themes and areas of keen interest in this field. Notably, the keywords that have surfaced most frequently include “entrepreneurship education,” with a count of 362, followed by “business education” at 192, “entrepreneurship” at 162, “entrepreneurial intention” with 113 instances, “entrepreneurial education” with 64 occurrences, “entrepreneurial intentions” at 40, and “social entrepreneurship” along with “entrepreneurial competencies,” each appearing 13 times. These keywords provide valuable insights into the central focus of entrepreneurship education research, shedding light on the key topics and trends driving scholarly exploration in this domain.

In addition to examining the intellectual and social structures within the field, this study also analyzed key figures in entrepreneurship research. The intellectual structure analysis identified the top ten co-cited authors, with Fayolle A. and Linan F. occupying prominent positions due to their substantial citation counts and link strengths. The social structure analysis, on the other hand, was bifurcated into author collaboration and country collaboration networks. It was evident within the author collaboration network that Matlay H, Jones C, Maritz A, Rae D, and Penaluna A exhibited robust collaboration patterns, characterized by frequent co-authorship within their professional circles. This underscores their active engagement within the social fabric of their research domain. Meanwhile, in the countries’ collaboration network, the United States and the United Kingdom emerged as the most influential nations in the realm of entrepreneurship research, signifying their significant contributions to the field’s global landscape.

IMPLICATIONS AND LIMITATIONS

The findings of this study have important implications for researchers and professionals in the field of entrepreneurship education. The utilization of the bibliometric analysis tool, bibliometrix, in this study, provides a novel approach for conducting comprehensive analyses and categorizing research areas within

higher education. This enables academicians and professionals to better understand the bibliometric analysis process and its applicability to various aspects of higher education research. The results of this study contribute valuable primary information on entrepreneurship education research, allowing researchers to gain insights into the field's current state and identify areas for further investigation. By examining co-citation patterns and social structures, researchers can better comprehend the relationships and connections between different research topics within this domain. This knowledge can assist scholars in identifying gaps in the existing literature and select future research areas that contribute to advancing knowledge in entrepreneurship education research. Furthermore, this study provides a comprehensive overview of significant developments and trends in entrepreneurship education research. This information is valuable for both researchers and practitioners in understanding the evolving nature of the field and staying updated with the latest research findings. By identifying emerging research themes and focal points, scholars can align their research interests with current trends and contribute to advancing knowledge in this domain.

However, it is important to acknowledge the constraints of this study. The analysis focused solely on bibliographic data from articles and excluded other types of publications such as books, conference papers, and reports. Including a broader range of publication sources could provide a more comprehensive overview of the research landscape in entrepreneurship education. Furthermore, the study relied on data collected from the Scopus database only, which has limitations and may not cover all relevant publications in entrepreneurship education. Future studies could consider using multiple databases and bibliometric indicators to gather a more diverse and extensive dataset for analysis to get more insightful results.

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