
Nepalese Journal of Management Research

ISSN 2738 (Print), ISSN 2738-9626 (Online)

Volume: 6 September 2026, Page no. 149-180

Website: <http://balkumaricollege.edu.np/journal>

Mapping the Global Knowledge Structure of Startup and Entrepreneurial Mindset Research Among Higher Education Graduates: A Bibliometric Analysis

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<https://doi.org/10.3126/njmgtr.v6i1.100598>**Corresponding Author*

Abstract

The paper provides an insight into the global knowledge structure, intellectual foundations, collaborative patterns, and research trends related to entrepreneurial and startup mindset among higher education students and graduates identified in the retrieved publications. The bibliometric analysis was conducted using 2139 articles and book chapters found in the Scopus database. The research was performed using Biblioshiny and VOSviewer software by analyzing document properties, quantity, quality, and distribution. The analysis covers the timeline, distribution of authors, sources, and countries, co-authors, citations, bibliographic coupling, co-citation, keywords, and thematic visualization of the field. The results of the research show that the area of study has a significant growth rate, being 11.51% per year, with 23.87 citations per document on average. The article describes the most common research topics, with entrepreneurial intention, entrepreneurship education, entrepreneurship, entrepreneurial self-efficacy, and self-efficacy being the most common ones. Theory of Planned Behavior is highlighted as one of the intellectual foundations of the research field, with Ajzen being the most influential scientist. The research also found that in the past decade, the direction of research shifted from entrepreneurship education, competencies, skills, barriers, and self-employment to experiential learning, digital entrepreneurship, entrepreneurial behavior, and technology-driven approaches. Moreover, the study identified several new research topics, including generative artificial intelligence, artificial intelligence, new pedagogy, and problem-solving. The article concludes that the research field is multidisciplinary and continuously growing and attracting the attention of researchers worldwide. Moreover, the paper underlines the necessity for higher education institutions to focus on entrepreneurial mindset, self-efficacy, creativity, opportunity recognition, innovation, experiential learning, and problem-solving.

Keywords: Digital entrepreneurship, Entrepreneurial mindset, Entrepreneurial intention, Entrepreneurial education, Entrepreneurial self-efficacy, Experiential learning and Higher education

1.Introduction

The concept of entrepreneurship is widely recognized as a key driver of economic growth and social change, and a variety of educational programs have been developed to foster entrepreneurial activities among university students, underlining their crucial role (Hanandeh R et al. 2021; Xanthopoulou, P., & Sahinidis, A. 2025). Entrepreneurship development is a process of converting an ordinary individual into an entrepreneur. Entrepreneurship has been gaining more recognition in recent times as one of the key components of economic development, innovations, job creation, and social transformation (Edoho, F.M., 2015; Silwal, Y. B. et al. 2022). In higher education, entrepreneurship has also attracted increasing attention as educational institutions strive to build the capacity of their students to spot opportunities, think innovatively, create new ventures, and react positively to changes in economic and technological conditions (Baskaran, S. et al. 2025). Entrepreneurship development does not only entail the transfer of business knowledge; rather, it means making individuals entrepreneurs through the cultivation of entrepreneurial mindsets, competencies, self-efficacy, opportunity spotting, creativity, and intention to undertake entrepreneurial ventures (Jiang, H. et al. 2017; Mofokeng, T. P. & Mofokeng, N. E. M. 2026). The attached study also conceptualizes entrepreneurship development as the transformation of ordinary people into entrepreneurs, stressing the importance of university students and graduates in entrepreneurship development (Casanovas, L.V. et al. 2025; Kola, V. at al. 2026).

Consequently, entrepreneurial mindset has become increasingly crucial in grasping how entrepreneurs view entrepreneurial opportunities and develop their ability to capitalize on these opportunities (Gouws, J. 2026). Other closely related concepts such as entrepreneurial thinking, entrepreneurial orientation, entrepreneurial intention, entrepreneurial competence, entrepreneurial attitude, entrepreneurial self-efficacy, and start-up intention all reflect different aspects of entrepreneurial readiness of the individual (Ontong, J. & Fourie, S.-L. 2026). Within the context of higher education, these different aspects are very relevant since universities play a critical role in creating entrepreneurial knowledge, skills, self-confidence, and attitudes among individuals (Bornman, D.A.J. 2026).

The evolution of intellectual development concerning entrepreneurial intention has seen an effect from theories of human behavior and intentions. The analysis of the uploaded data shows the Theory of Planned Behavior by Ajzen I. (1991), to be very significant from a theoretical standpoint, with Ajzen being the most influential cited author and the Theory of Planned Behavior being one of the most frequently occurring concepts (Rana, M. et al. 2025). Attitudes, subjective norms, and perceived behavioral control have been shown to be important in predicting behavior according to the theory. There is influence from social cognitive theories and self-efficacy, which shows that there are many factors in the process of entrepreneurial behavior (Jaiswal, A.K. & Singh, O.P. 2026; Pan, H. et al. 2026).

However, at the same time, the research field has grown up to encompass areas not considered in previous psychological interpretations. The identified key concepts include entrepreneurial education, entrepreneurship education, family background, behavioral beliefs, entrepreneurial pedagogy, achievement motivation, parental modeling, and cross-cultural approaches (Koropogui, S.B. et al. 2026). It implies that an entrepreneurial mindset development process does not depend only on the individual factors; it is influenced by one's

family, educational institutions, culture and education, among others. The research field has widened to cover various people from various backgrounds such as academicians, special-needs students, engineering education, and health care management (Pop-Cohuț, I. C. 2025).

In recent times, developments in technology and education have had an impact on the way entrepreneurial mindset studies have been moving forward (Aboobaker, N. et al. 2023; Shrivastav, S., & Rao, P. V. M. 2025). The above uploaded bibliometric analysis shows that digital entrepreneurship, generative artificial intelligence, artificial intelligence, disruptive technologies, experiential learning, innovative pedagogies, and entrepreneurial training are some of the emergent topics (Abdelmagid, A.S. et al. 2025). From the trend analysis, there is a shift from the older focus on self-employment, competencies, skills, barriers, and perceived behavioral control towards a greater focus on entrepreneurial intention, entrepreneurship education, self-efficacy, experiential learning, digital entrepreneurship, and engineering education (Winkler, C. et al. 2023; Duong, C.D., & Vu, T.N. 2025).

The large amount in entrepreneurial literature has been spread among many authors, institutes, countries, journals, theoretical perspectives, and research topics (Servantie, V. et al. 2016; Terjesen, S. et al. 2016). International collaboration has appeared in 28.52% of documents in this dataset, while contributions have been made by more than 100 countries (Shabbir, M.S. et al. 2022; Bueno, S. et al. 2025). Among those making significant contributions are India, USA, Spain, Malaysia, Indonesia, and China; on the other hand, at the citation level, there exist variations among countries regarding research output and impact (Nabi, G. et al. 2017; Wu, Y.J., & Wu, T. 2017; Halalsheh, N. Z. et al. 2026). This diversity makes it tough to make sense of the intellectual structure of this field via narrative literature review alone.

Hence, bibliometric analysis becomes a suitable method for conducting systematic mapping of development and intellectual structure of this expanding research field (Aparicio, G. et al. 2019; Syed, R. T. et al. 2023; Talukder, S. C. et al. 2024). Publication performance, influential authors, sources, citations, co-authorship, bibliographic coupling, co-citation, and keyword co-occurrence become important aspects of such bibliometric analysis which helps identify the important intellectual bases, collaboration patterns, topic areas and new research directions (Deveci, İ. 2022; Yan, L., & Zhiping, W. 2023; Lyu, P. et al. 2026). In this study, VOSviewer is used to analyze these knowledge structures, including co-authorship, citations, bibliographic coupling, co-citation, and keyword co-occurrence networks.

The goal of this research is to understand the knowledge structure of the research on startup and entrepreneurial mindsets among higher education students and graduates through mapping of publication growth, identification of influential authors, sources, and countries, co-authorship, citation, bibliographic coupling and co-citation analysis, mapping of key research topics through keyword co-occurrence analysis, and the identification of trends and future directions in entrepreneurship education, self-efficacy, experiential learning, digital entrepreneurship, artificial intelligence and innovative teaching methodologies. This research attempts to provide an insight into the evolution of startup and entrepreneurial mindset research, interrelationships of its knowledge base, and emerging research opportunities.

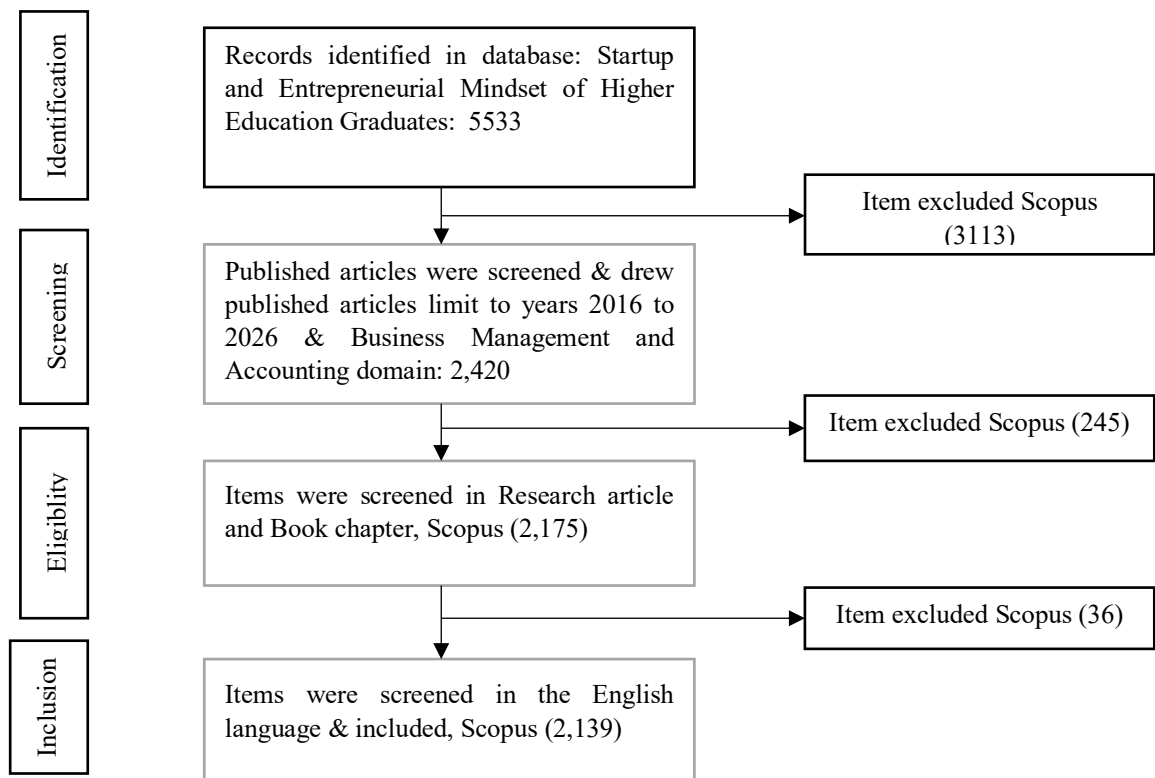
2. Methodology

This research used bibliometric approach to analyze the knowledge map of startup and entrepreneurial mindsets studies for the population of higher education students and graduates. A Boolean operation was conducted with the support of ChatGPT AI and the result was as ("startup mindset" OR "entrepreneurial mindset" OR "entrepreneurship mindset" OR "entrepreneurial thinking" OR "entrepreneurial orientation" OR "entrepreneurial intention*" OR "entrepreneurial competence*" OR "entrepreneurial attitude*" OR "entrepreneurial self-efficacy" OR "startup intention*") AND ("higher education graduate*" OR "university graduate*" OR "college graduate*" OR graduate* OR alumni OR "final-year student*" OR undergraduate* OR "university student*" OR "college student*" OR student*). A systematic search was performed by using this extensive search string in the Scopus database.

The result of the first search was 5,533 documents. Successive screening was done by specifying the publication year from 2016 to 2026 (4,908 documents), discipline as Business, Management and Accounting (2,420), document type as Article and Book Chapter (2,175), and language as English (2,139). The final list of 2,139 documents was extracted and used for bibliometric analysis as summarized in the PRISMA flow diagram (Figure 1). The screened dataset was analyzed in two stages as suggested by Donthu et al. (2021), namely performance analysis and science mapping. Performance analysis was conducted by applying Biblioshiny® (Bibliometrix) version 5.0 while science mapping was subsequently performed in both Biblioshiny® and VOSviewer software version 1.6.20. The VOSviewer was used to analyze co-authorship, citation, bibliographic coupling, co-citation, and keyword occurrence network

Figure 1

Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA)



3. Results

This section comprises performance analysis and science mapping, as these complementary approaches provide a comprehensive understanding of the research prospects on the selected area.

3.1 Performance Analysis

Performance analysis evaluates the scientific productivity and impact of a research field by examining its key bibliometric indicators (Devkota, N., et al. 2026). It gives an evidence-based understanding of the development, influence, and productivity of scholarly research, enabling the identification of major contributors and research trends (Ballesteros-Ballesteros, V.A. & Zarate-Torres, R.A. 2025; Kumar, R. 2025; Esfe, M.H. et al. 2026). It includes main information dataset, annual scientific production and growth, the most relevant and influential authors, leading publication sources, and the most cited countries.

3.1.1 Main Information of Dataset

Table 1: *Summary of the main information dataset*

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2016:2026
Sources (Journals, Books, etc)	509
Documents	2139
Annual Growth Rate %	11.51
Document Average Age	3.98
Average citations per doc	23.87
References	101888
DOCUMENT CONTENTS	
Keywords Plus (ID)	804
Author's Keywords (DE)	3823
AUTHORS	
Authors	5121
Authors of single-authored docs	206
AUTHORS COLLABORATION	
Single-authored docs	251
Co-Authors per Doc	3.13
International co-authorships %	28.52
DOCUMENT TYPES	
Article	1917
Book chapter	222

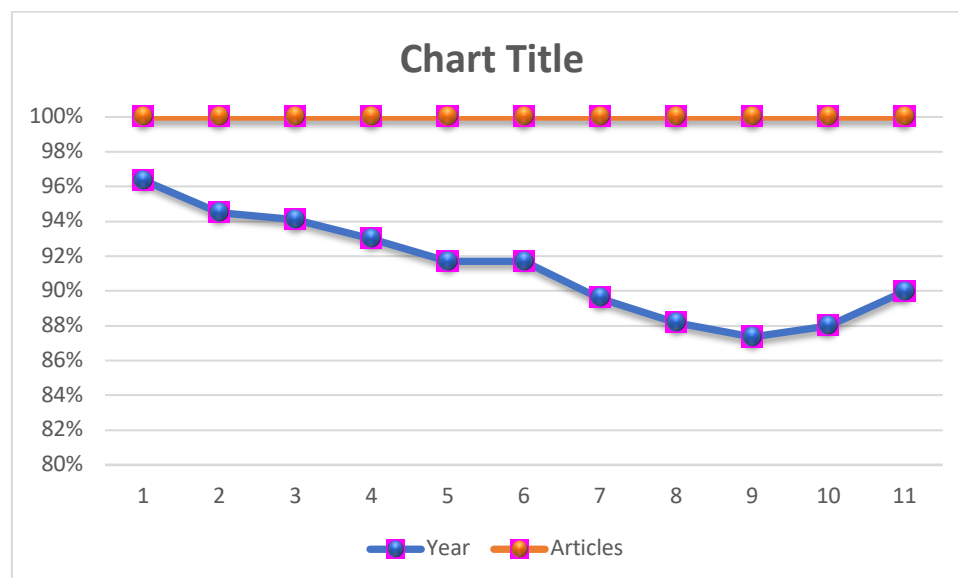
The dataset has 2,139 documents from 509 journals and book chapters and other sources over eleven years from 2016 to 2026. This field is growing fast with documents getting more every year at a rate of 11.51 percent. The documents are very new, they are about four years old on average, which is 3.98 years. Even though they are new they are already very important

with each document being cited 23.87 times on average. This means the research is very influential and well known in the community. The research is many different things using 3,823 Authors Keywords and 804 Keywords Plus, which shows that the research is about many different subjects. A total of 5,121 authors has written these documents. Most of the research is done with people with an average of 3.13 co-authors per document and many of these are international collaborations, with 28.52 percent of them being with people from other countries. However, some authors also work alone. There are 251 documents that were written by just one person. Most of the documents are research articles with 1,917 articles. There are also 222 book chapters, which show that the researchers are sharing their work in many ways both in journals and in books. The data set is about research, and the research is about many things, and it is growing very fast. The documents in the dataset are very important. They are being cited many times, which means the research is very good.

3.1.2 Annual Scientific Production and Growth

Figure: 2

Annual Scientific Production and Growth



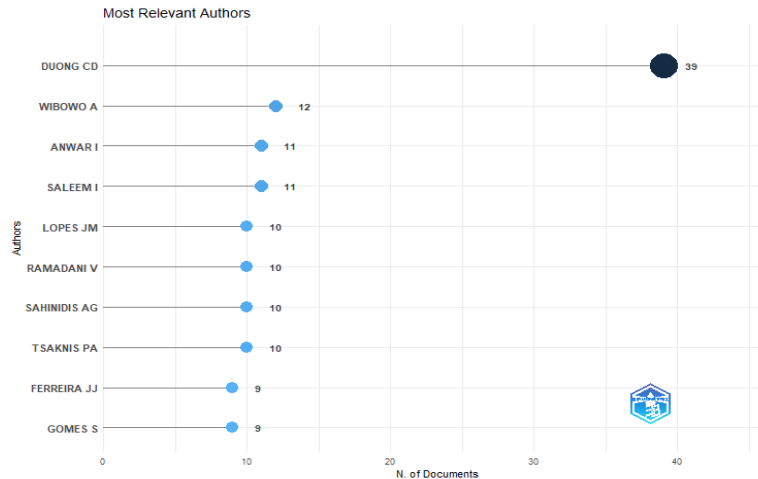
The number of articles published over 11 years shows a steady rise. It started with 76 articles in 2016. Went up to 293 articles in 2024. This is four times more than the starting number. It proves the annual growth rate of 11.51% that was recorded in the main dataset. The growth did not go up in a line. Between 2016 and 2020 the number of articles increased slowly. Sometimes stayed the same. For example, both 2020 and 2021 had 183 articles. Then from 2021 to 2024 the number of articles went up each year. This increased and ended with the highest number of articles in 2024. The numbers for 2025 and 2026 show a drop from the 2024 level. This drop might not be real. It could be because the data was taken before the end of those years. It is likely that when the full data for 2025 and 2026 is available the numbers will be as high or higher than in 2024.

3.1.3 Most Relevant Authors

The authorship structure in this field of study has a pronounced leader, who is Duong CD. In terms of quantity of published articles, Duong CD significantly exceeds the second author, publishing 39 articles, which is more than three times those of the others. Thus, the researcher is the leading one in this research field. The second, third, and fourth spots are taken by Wibowo (12), Anwar I (11), and Saleem I (11). Further, authors with 10 papers each are presented: Lopes JM, Ramadan V, Sahinidis AG, and Tsaknis PA. Finally, the last two places are taken by Ferreira JJ and Gomes S with 9 papers each. Notably, when the authorship is evaluated by fractionalized counts, the ranking changes. However, Duong CD remains in first place with 17.75 against 10 articles. Sahinidis AG, and Tsaknis PA are the most cooperative authors, with 3.04 fractionalized counts each from the total of 10 papers. Anwar I and Ramadan V are relatively less cooperative with 2.42 and 2.47 fractionalized counts respectively, thus, significantly lower than the average of 3.0. Thus, in general, it can be said that the number of authors is considerable, which implies that the research field is attractive, as evidenced by the number of researchers who cooperate with each other and participate in the study. The difference between the total number of papers published and the total number of fractionalized counts demonstrates that most authors publish in cooperation, implying the significance of such research. However, the number of authors is also relatively high, close to each other, implying competition in the field.

Figure: 3

Most Relevant Authors



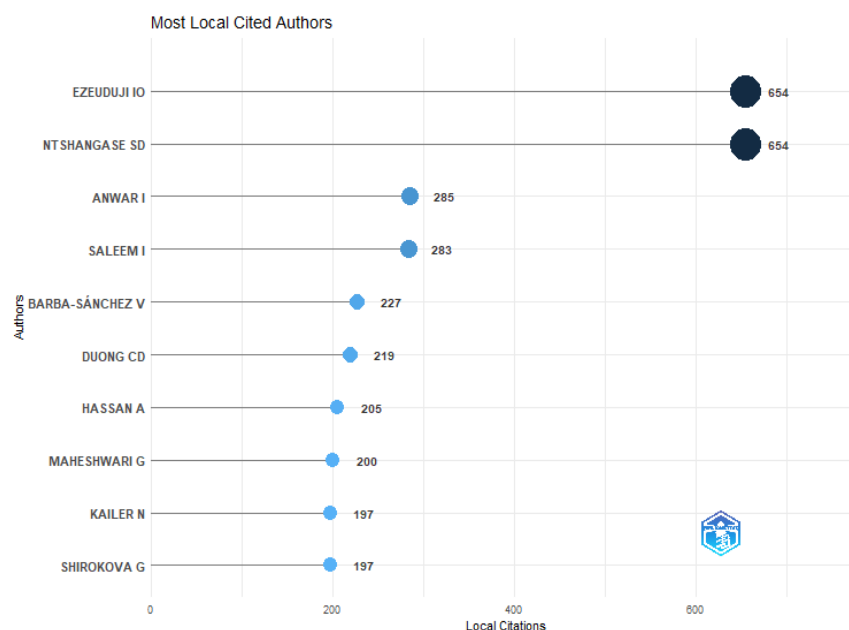
3.1.4 Most Impactful Authors

The analysis of authors ranked by the number of citations received indicates the presence of two categories: the first two prevailed considerably over the rest and comprised most citations. Particularly, Ezeuduji IO and Ntshangase SD received the highest number of citations (654 each), while the next one, Anwar I, obtained 285 citations and took the second place. The author with the second-highest number of citations is Saleem I (283). Furthermore, there is a considerable gap between the top four and the next authors. Thus, the sixth one, Barba-Sanchez V, has 227 points, followed by Duong CD (219), Hassan A (205), Maheshwari G (200), Kailer N (197), Shirokova G (197), and others. It is also interesting to compare this list with the

previous one (the most productive authors). Notably, Duong CD who was the most productive author (39 articles) ranked sixth in the current list (219 citations). At the same time, the authors who took the second and the third places in the previous analysis (Anwar I and Saleem I) yielded relatively high results (285 and 283 citations) and ranked 2nd and 3rd in the present list. As can be seen, this author's performance was comparable to his productivity. Additionally, there is a significant gap between the top 2 (Ezeuduji IO and Ntshangase SD) and the bottom 3 (Anwar I and Saleem I, and Duong CD). Notably, the former authors' number of citations is more than double compared to the latter (654 versus 285). This might suggest that Ezeuduji IO and Ntshangase SD have made the most significant contributions to the development of field and/or their works comprised review articles with a very high number of citations. Overall, it can be concluded that the most productive authors are not necessarily the ones who are the most cited. In other words, it is not possible to determine the most influential researchers based on the number of published articles.

Figure: 4

Most Impactful Authors



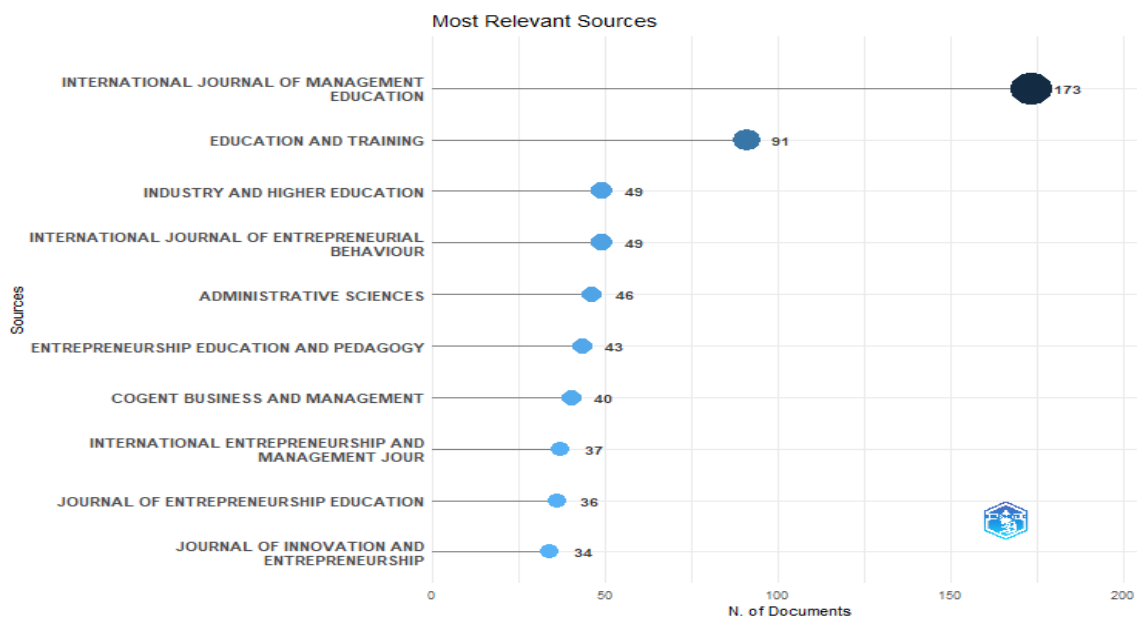
3.1.5 Most Relevant Sources

The way things are published is really spread across 509 places, but some journals are clearly more popular than others. The international journal of management education is the one that stands out the most it has published 173 articles, which's almost twice as many as the next one. Then there are education and training with 91 articles and a few other journals that have between 40 and 49 articles, like industry and higher education, journal of entrepreneurial behaviour and research and administrative sciences.

When you look at the list of sources you can see that people are really interested in entrepreneurship education, management education and new ways of teaching. Journals like entrepreneurship education and pedagogy journal of entrepreneurship education and entrepreneurship education are very popular. Many of the sources are all about

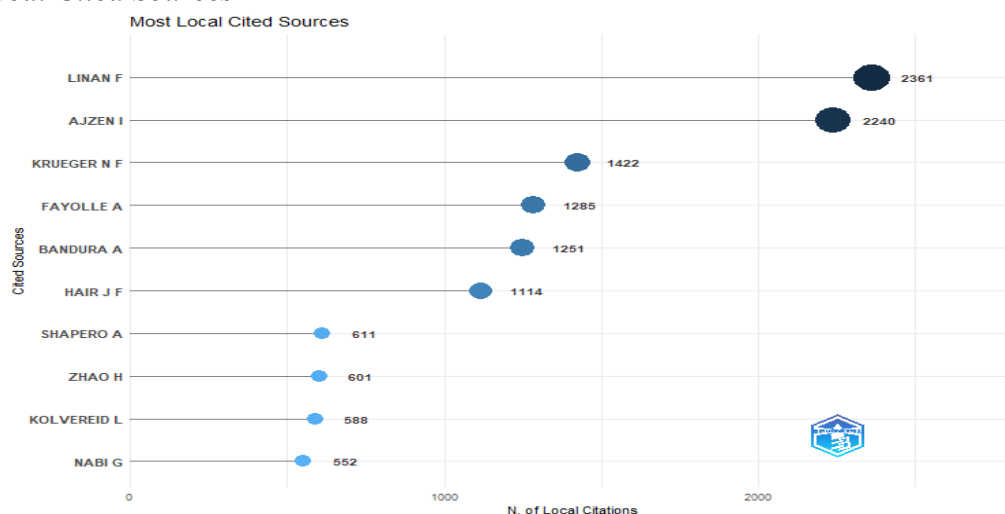
entrepreneurship, small businesses and helping businesses grow, which shows that this field is very specialized. There are also a lot of other sources that are not as popular, over 200 of them have only published one or two articles each. These include journals from around the world and from different subjects like hospitality, tourism, family business, social enterprise and sustainability. There are also books and papers from conferences. This shows that people are interested in entrepreneurship from different angles and places even though most of the important discussions are still happening in a small group of leading entrepreneurship and management education journals, like entrepreneurship education and management education journals.

Figure: 5
Most Relevant Sources



3.1.6 Most Impactful Sources

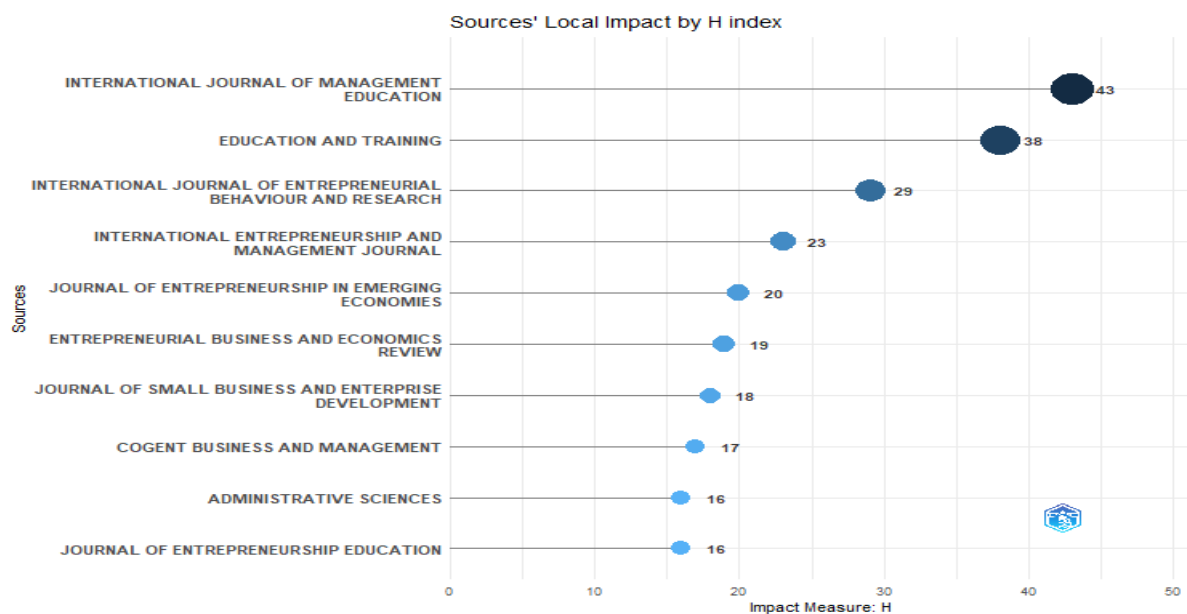
Figure: 6
Most local Cited Sources



The top 10 most locally cited sources reveal the intellectual foundations as well as the most influential literature within the research field. Linan, F. (2,361 citations) takes the lead, followed by Ajzen, I. (2,240) and Krueger, N. F. (1,422). This shows the strong influence of the concepts of entrepreneurial intention and behavioral theory. Fayolle, A. (1,285) and Bandura, A. (1,251) show significant scholarly influence and can be associated with the concepts of entrepreneurial intention and social cognitive theory. Hair, J. F. (1,114) indicates significant methodological influence. In addition, Shapero, A. (611), Zhao, H. (601), Kolvereid, L. (588), and Nabi, G. (552) have contributed significant theoretical and empirical insights into literature. All in all, the citation pattern shows that the literature is very much rooted in entrepreneurial intention, behavioral theory, social cognitive theory, and research methodology.

Figure: 7

Most Impactful Sources by Local H-Index



According to the source impact analysis, the most important source is the International Journal of Management Education, which has the highest values for H-index (43), g-index (70) and total number of citations (TC = 5,633) out of 173 sources. The next in the list of source impact is Education and Training (H-index = 38; TC = 3,871) and the International Journal of Entrepreneurial Behaviour and Research (H-index = 29; TC = 3,128). Among other influential sources there are International Entrepreneurship and Management Journal (H = 23), Journal of Entrepreneurship in Emerging Economies (H = 20) and Entrepreneurial Business and Economics Review (H = 19). Another highly impactful source is the Journal of Small Business and Enterprise Development (H = 18; TC = 1,066). All in all, one can see that the leading sources are mostly concentrated on entrepreneurship, management education, entrepreneurial behavior, and emerging economies.

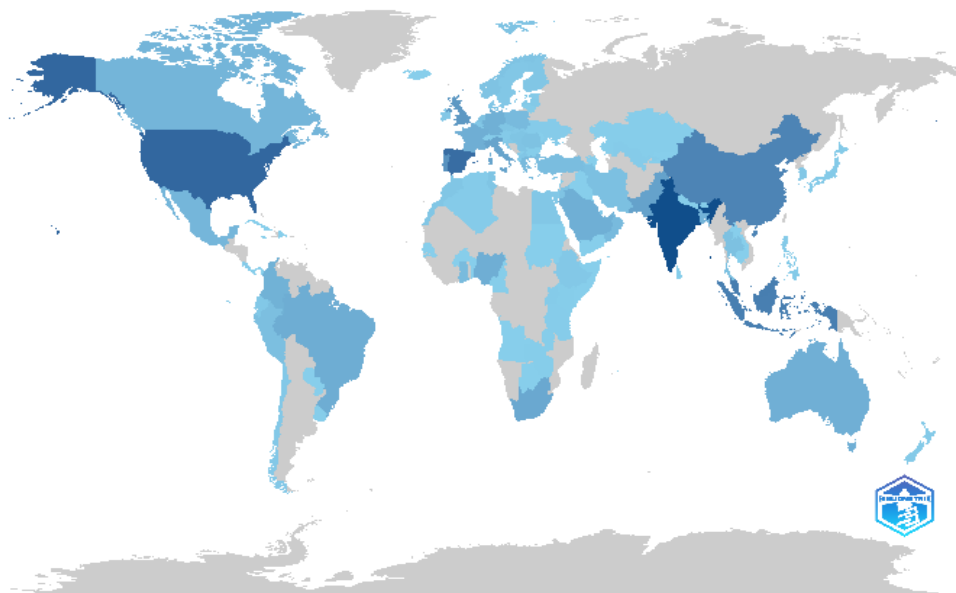
3.1.7 Most Relevant Countries

It is possible to notice that most of the countries cited in the research are different, totaling over 100 states. Among the leading countries, India secures the first place with 380 articles, the second is USA with 299, and the third is Spain with 281. Following these countries, it is possible to notice another group of states that have more than 200 articles. First among them is Malaysia (230), then Indonesia (228), and China (211). Furthermore, several European states also participate in the research: Portugal (170), UK (154), Italy (119), and France (89). It is possible to see countries from South Asia, Southeastern regions, the Middle East, and Africa also contribute to the articles' creation. Therefore, the study provides valuable information at the international level. Attention should be paid to South Africa (106), Nigeria (89), and Ghana (53). At the same time, Singapore (5) and Japan (13) have a small contribution to the research. Several states have only 1-5 papers published: it indicates that these countries are emerging regions with potential for research.

Figure: 8

Country Scientific Production

Country Scientific Production



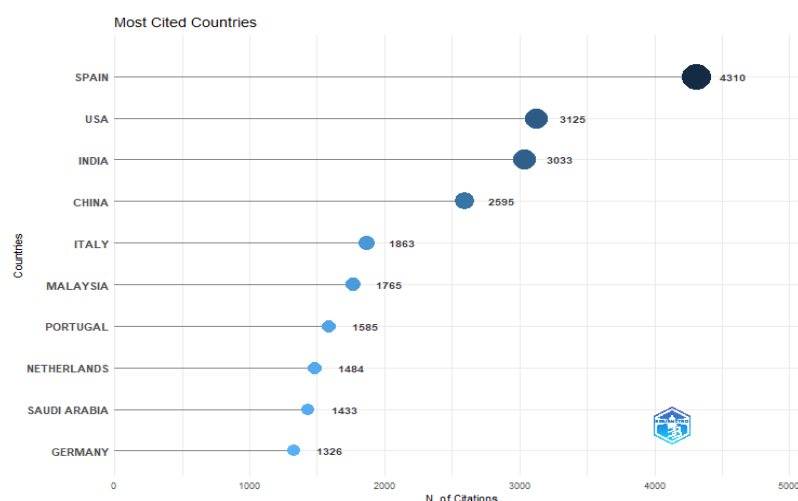
3.1.8 Most Impactful Countries

The analysis of the impact of countries on the articles is not linear. First, based on the total number of citations, Spain leads with 4310, followed by the USA (3125) and India (3033). In turn, China (2595) and Italy (1863) are in the fourth and fifth positions, respectively. Thus, the countries of the First World and the so-called developing countries have the most significant impact on the study. However, if one takes the average number of citations per article, then the ranking changes substantially. The Netherlands is among the leaders with 87.3 average citations per article. At the same time, the Netherlands only takes the eighth position in terms of the total number of citations (1484). This means that the Netherlands has the most

popular science in the world, which is represented by a relatively small volume of research. In turn, Saudi Arabia and Italy are also among the countries with the most significant impact on the article, with an average number of citations of 44.8 and 40.5, respectively. However, the total number of citations for these countries is significantly lower than for India (3033) and China (2595). The USA (30.0) and Spain (36.5) also have a considerable impact on the article. Finally, Germany (35.8) and Portugal (33.7) are among the countries with moderate impact. Thus, the average number of citations is significantly different from the total number of citations. The countries have different levels of scientific development; therefore, their impact on the research is also different. To conclude, the analysis of the impact of countries on the research shows that the number of citations is not proportional to the volume of research. Some countries have a much greater impact on the article than one might expect at first glance. On the other hand, some countries have a relatively significant volume of research, but the impact is lower than one might expect. Thus, there are leaders in the number of citations, as well as countries that have a much greater impact on the study than their position in the ranking might suggest.

Figure: 9

Most Impactful Countries



3.2 Science Mapping

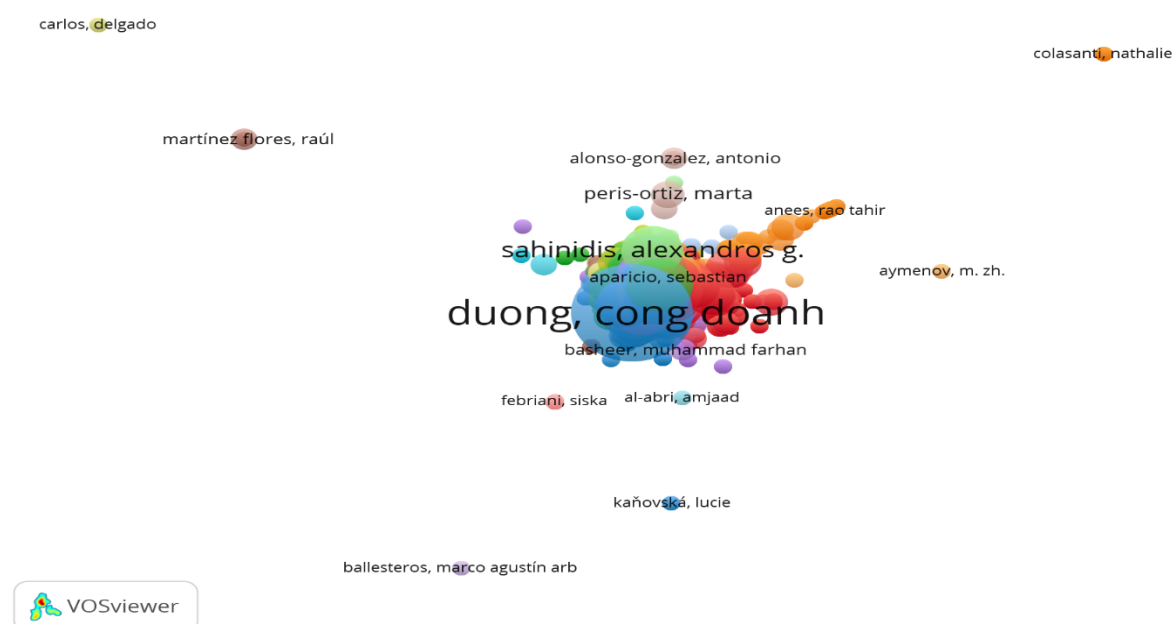
Khalil, H. et al. (2025), defines mapping reviews are valuable tools for synthesizing and visualizing research evidence, providing a comprehensive overview of studies within a specific field. Science mapping is a widespread technique in bibliometric analysis that enables researchers to reveal the structure of their respective fields and identify dominant themes (Aria, M. & Cuccurullo, C. 2017; Pessin, V.Z. et al. 2022; Chen, H. et al. 2023;). In this section, co-authorship analysis, co-citation analysis, bibliographic coupling, co-occurrence analysis, citation analysis, world cloud analysis, tree-map analysis, trend topic analysis, and thematic mapping, are included.

As can be seen from the results of the VOSviewer analysis, 127 out of 137 countries were above the cut-off criteria of having at least one document and one citation, meaning there was international cooperation in the study field. The network is characterized by highly interconnected global collaboration, which has strong connections between several major countries. The US can be defined as the most central country in the network, meaning that there were high research output and collaboration with other countries. India, Spain, China, Malaysia, Indonesia, Vietnam, South Africa, Portugal, and Saudi Arabia are also represented in the network as central countries. The high number of connections between these countries signifies the presence of research cooperation between them. Smaller countries such as Trinidad and Tobago, Benin, Kuwait, Senegal, Angola, and Uganda were less central, yet still connected to the network.

3.2.2 Bibliographic Coupling

Figure 12

Bibliographic coupling and Authors Analysis



According to the VOSviewer bibliographic coupling analysis, 4,513 out of 5,275 authors fulfilled the requirement of at least one publication and at least one citation. There is a significant concentration of the network around the core group of researchers, where the most notable researcher, in terms of both node size and position centrality, is Duong, Cong Doanh. Other authors with close connections include Sahinidis, Alexandros G., Aparicio, Sebastian, Bashir, Muhammad Farhan, and Anees, Rao Tahir. High connectivity implies that the authors have very similar sets of references, which can be explained by similar theoretical foundations. Several small and periphery clusters, such as Carlos Delgado, Nathalie Colasanti, and Martínez Flores, Raúl, imply independent research streams. Therefore, the network structure is characterized by the core-periphery pattern.

Figure 13

The VOSviewer bibliographic coupling network analysis indicates that out of 509 sources, 433 satisfied the criteria of having at least one document and one citation, showing a high level of source diversity. The network has a highly concentrated core with the presence of certain journals that have played an important role in the development of knowledge. According to the sizes and positions of nodes, the most influential source is the International Journal of Management. The other sources that have made a great contribution to the body of literature are the International Journal of Entrepreneurship, International Review of Management, Journal of Women's Entrepreneurship, and Journal of Evolutionary Studies.

Bibliographic coupling and source



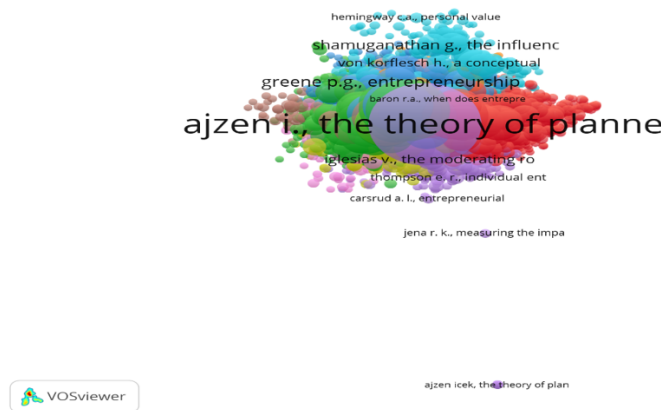
The tight clustering of sources shows that there is a great similarity in citations between them. Some peripheral sources, such as Emerald Emerging Markets Case and Sustainable Entrepreneurship, are less associated with the core network. Colors of the overlay (2018 indicates the dynamics of the literature and the emergence of new sources in green and yellow nodes).

3.2.3 Co-citation Analysis

Through the co-citation analysis, it can be concluded that there exists strong interconnectivity within the body of knowledge on entrepreneurial intentions. With the application of the minimum threshold for citations set at five citations, 4,913 out of 45,888 authors met the criterion, indicating a wide and diverse body of knowledge. From the visualization of the co-citation analysis, Icek Ajzen emerges as the most cited and central scholar, depicting the influence of the Theory of Planned Behavior on explaining entrepreneurial intentions.

Figure 14

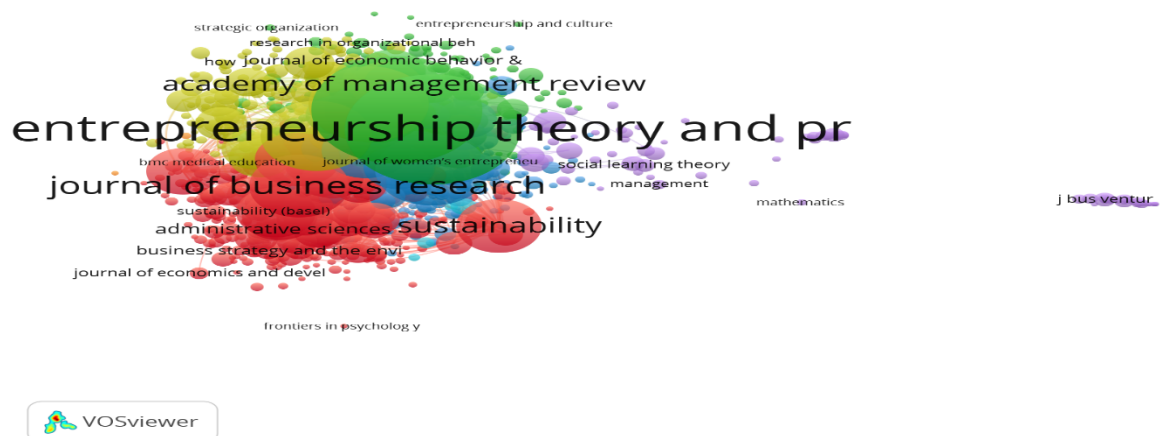
Co-citation cited authors



Other authors who are seen as part of interconnected clusters include Greene, Baron, Krueger, Shapero, and Carr among others, showing that they contribute towards the understanding of entrepreneurial intention, entrepreneurship, and individual determinants. This shows the strong intellectual connections among the papers that use theories of intention, psychology and behavior to explain the phenomenon.

Figure 15

Co-citation cited sources



Co-citation analysis of the cited sources uncovers the existence of an intricate and highly interrelated intellectual structure in the field of entrepreneurship research. Based on the minimum number of five citations, 2,575 out of 28,172 articles were identified, which shows high scholarly dispersion of research. In this case, "Entrepreneurship Theory and Practice" acts as the key and most central source within the network, which indicates the pivotal contribution

of the journal in entrepreneurship research. Moreover, some other sources have been identified including the Academy of Management Review, Journal of Business Research, Sustainability, Administrative Sciences, Journal of Economic Behavior & Organization, and Journal of Economics and Development. Some other connections can be observed for the fields of social learning theory, strategic organization, entrepreneurship and culture, sustainability, business strategy, and management, which demonstrates that entrepreneurship research is multi-disciplinary. Peripheral sources like the Journal of Business Venturing are distinctive and show specific research lines. Thus, the co-citation structure of entrepreneurship research indicates theoretical foundation within the key management and entrepreneurship journals and gradual integration of sustainability, organizational behavior, strategy and social theories.

Figure 16

Co-citation cited references



Co-citation analysis of references cited by studies indicates a very developed and connected intellectual structure in the field of entrepreneurial intention research. Out of 97,980 references, 3,499 references have reached the minimum threshold of five citations each and thus become very influential in the field. In the visualization above, the first and foremost most influential reference is the Theory of Planned Behavior of Ajzen. This finding clearly validates the fact that the Theory of Planned Behavior is a fundamental part of the explanation of entrepreneurial intentions through attitude, subjective norm and perceived behavioral control. Other references, which are Greene, Baron, Carr, Thompson, Iglesias, Shapero, and Krueger, are also very influential and indicate alternative theories related to entrepreneurship, individuality, entrepreneurial behavior, and intentions. The dense clusters in the center show the intellectual integration of the foundation of the research, while the peripheral clusters show the specialized perspective like personal values, characteristics of entrepreneurs, conceptual models and moderating variables.

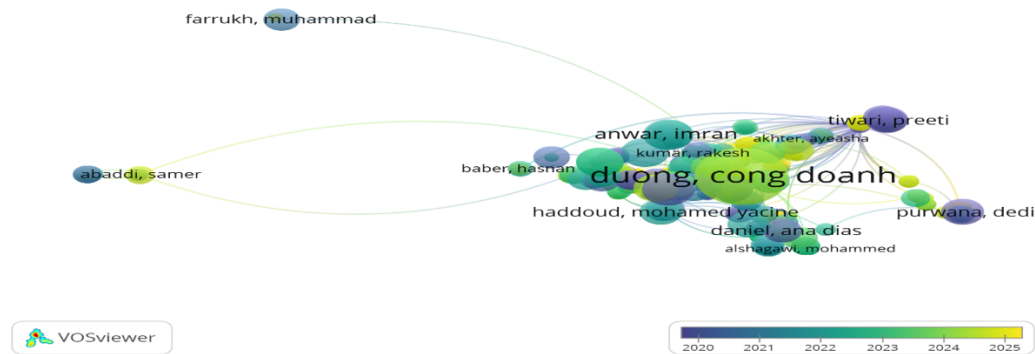
3.2.4 Citation Analysis

In the VOSviewer citation analysis, there were 4,513 authors among the total 5,275 authors that achieved the minimum criteria of having at least one document and one citation. Duong, Cong Doanh emerges as the most influential and the highly linked author and is located

at the center of the citation network. Some other influential authors include Haddoud, Mohamed Yacine, Anwar, Imran, Tiwari, Preeti, Purwana, Dedi, and Daniel, Ana Dias.

Figure 17

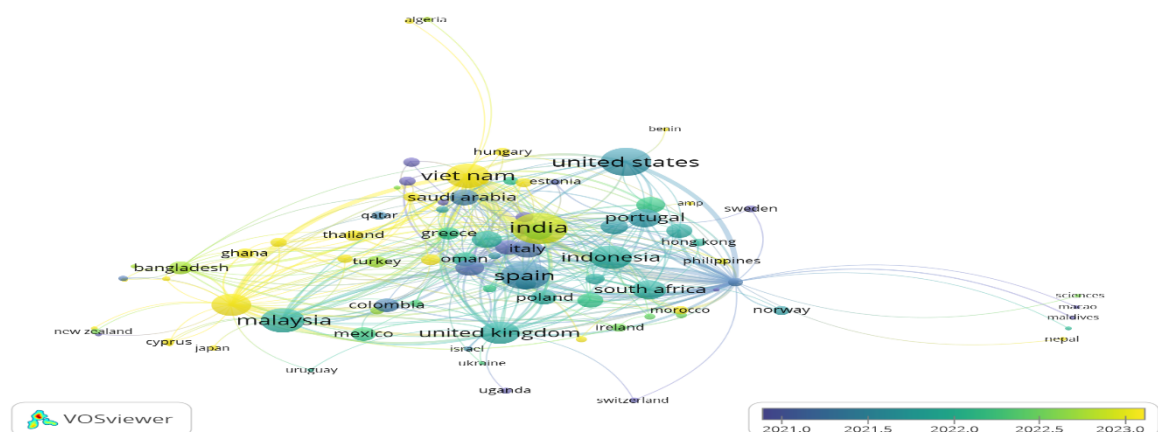
Citation and Author



The denser network of citations and scholarly influence exists around the central authors. The overlay of colors from 2020 to 2025 denotes the temporal development of influential authors where green to yellow represents relatively newer influential authors. In general, from the network, citation influence exists around the central authors whereas some peripheral authors have relatively weaker connections with others.

Figure 18

Citation and countries



Based on the VOSviewer citation analysis, 127 out of 137 countries have satisfied the basic criteria of at least one document and one citation, indicating wide international research participation. There is evident citation interlinkage between major countries, and the top countries identified through the sizes and placement of nodes include the USA, India, Malaysia, Spain, United Kingdom, Indonesia, Vietnam, and South Africa. The USA and India are found

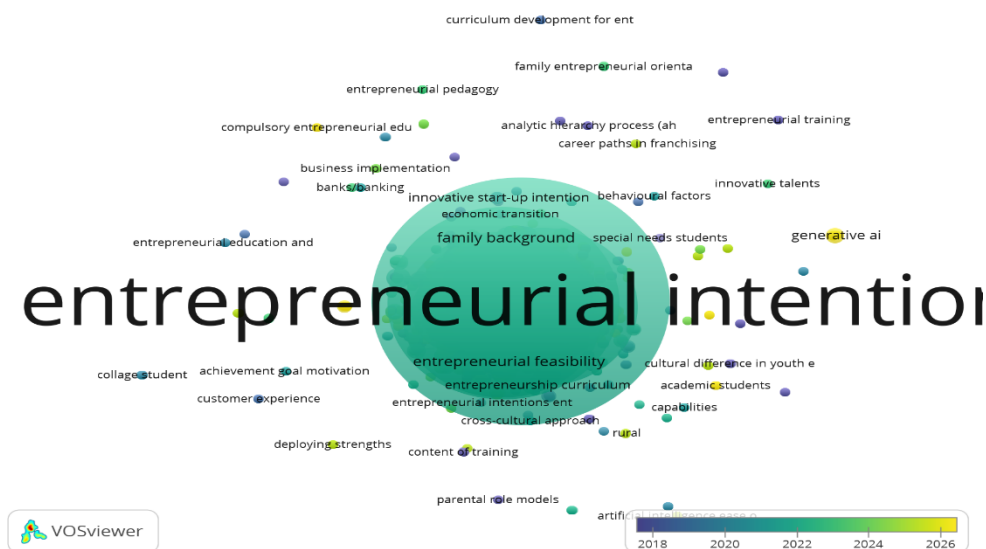
in key locations while Malaysia and Spain show citation connectivity as well. There is evidently high connectivity in the network that shows international knowledge sharing and influence. From the overlay visualization of the network, which covers approximately from 2021 to 2023, there is evidence of changing citation prominence over time, with the yellow-green colored nodes representing relatively new activity. Smaller countries like Nepal, Maldives, Macao, Uganda, and Benin can be seen to be in peripheral locations.

3.2.5 Co-occurrence Analysis

As the minimum occurrence was 1, all the 4,314 keywords have been considered in the co-occurrence analysis. As seen from the visualization, an extensive knowledge structure has been developed around entrepreneurial intention, and it can be seen to be the dominant and central keyword. Some of the topics which are very close to the topic include family background, innovative start-up intention, behavioral factors, entrepreneurial feasibility, entrepreneurship curriculum, and entrepreneurial education showing a high correlation between the individual, educational and contextual factors that influence the entrepreneurial intention. Some of the other important keywords such as cross-cultural approach, achievement goal motivation, parental role models, capabilities, academic students, and special needs students show that the scope of the literature has widened over time. The overlay also shows some emerging areas of research such as generative AI, artificial intelligence, innovative talents, and entrepreneurial training as shown in recent colors.

Figure 19

Co-occurrence All keywords and Co-occurrence with a keyword

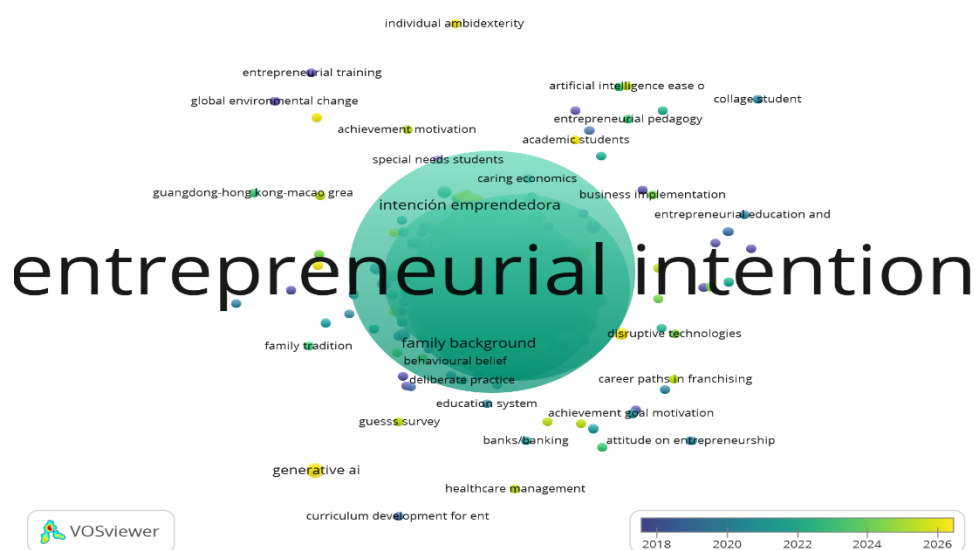


Author keywords co-occurrence analysis yielded a total of 3,824 keywords with all keywords satisfying the minimum frequency requirement of one. It can be noted from the visualization above that the main and the most important keyword is “entrepreneurial intention,” which has a very good connection conceptually with family background, behavioral

beliefs, entrepreneurial pedagogy, entrepreneurial education, and achievement motivation. The network demonstrates the multidimensional character of entrepreneurial intention studies where individual factors, family factors, educational factors, behavioral factors, and institutional factors have been linked. Generative AI, artificial intelligence, disruptive technologies, entrepreneurial training, and innovative pedagogies are some of the emergent topics, which demonstrate increasing trends of researching technology-enabled entrepreneurship. Special needs students, academic students, healthcare management, global environmental change, and cross-cultural environments show how the application of entrepreneurial intention is increasingly becoming diverse.

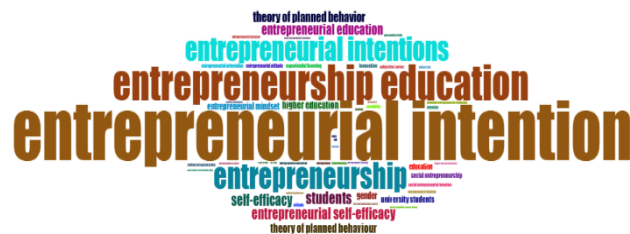
Figure 20

Co-occurrence with a keyword



3.2.6 World-cloud/Tree Map Analysis

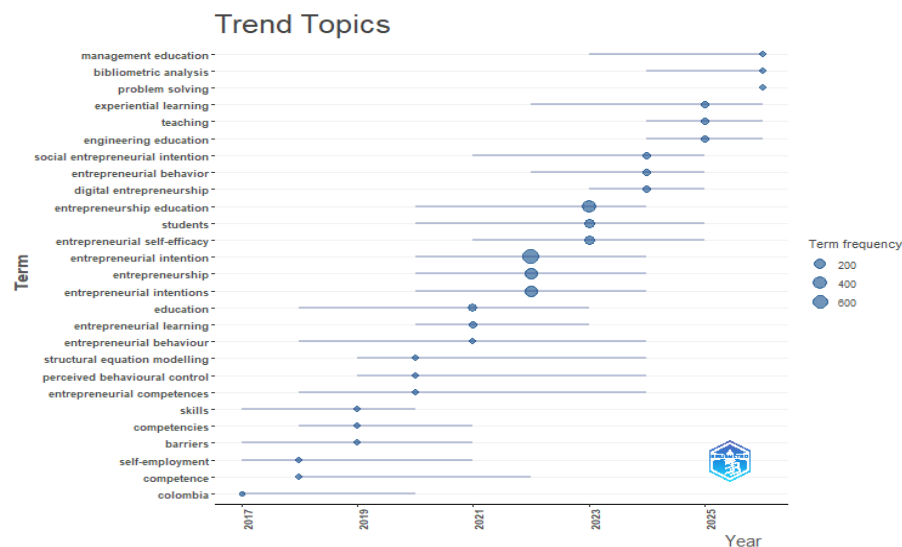
Keyword analysis revealed that entrepreneurial intention was the most prominent research topic with 737 mentions, followed by entrepreneurship education (446) and entrepreneurship (331). High frequency links to topics like entrepreneurial intentions, students, entrepreneurial self-efficacy and self-efficacy suggest that the research concentrated on exploring the process of forming intentions and psychological determinants of entrepreneurial behavior. The importance of Theory of Planned Behavior (attitude, subjective norms, perceived behavioral control) reveals that this theory has a key theoretical significance in explaining entrepreneurial intentions. New research topics like entrepreneurial mindset, experiential learning, digital entrepreneurship, sustainable entrepreneurship, social entrepreneurship, creativity, innovation and entrepreneurial orientation reflect new directions of research.

Figure 21*World-cloud*

Higher education, university students and engineering education reveal that educational context is important for conducting research. From geographical perspective India, Vietnam and Saudi Arabia are prominent. Thus, the research area focuses on entrepreneurship education and students' entrepreneurial intentions.

Tree Map Analysis

The tree map shows that there is high concentration in terms of entrepreneurship research landscape dominated by entrepreneurial intention with the highest frequency (737; 17%), then entrepreneurship education (446; 10%), entrepreneurship (331; 8%) and entrepreneurial intentions (300; 7%). It means that intentions of individuals towards entrepreneurship is the main issue of research. The second significant cluster includes students (159), entrepreneurial self-efficacy (151) and self-efficacy (148). Thus, it is important to note that the main emphasis in such research is on psychological and educational predictors of entrepreneurial intentions. The high frequency of usage of the notions like Theory of Planned Behavior and Theory of Planned Behaviour (127 and 115 respectively) also speaks about the significant theoretical foundation. Such notions as higher education, university students, entrepreneurial mindset, gender and experiential learning emphasize the significance of the educational context. Social entrepreneurship, innovation, creativity, digital entrepreneurship, sustainable entrepreneurship and entrepreneurial skills are emerging concepts indicating diversity towards modern types of entrepreneurs.

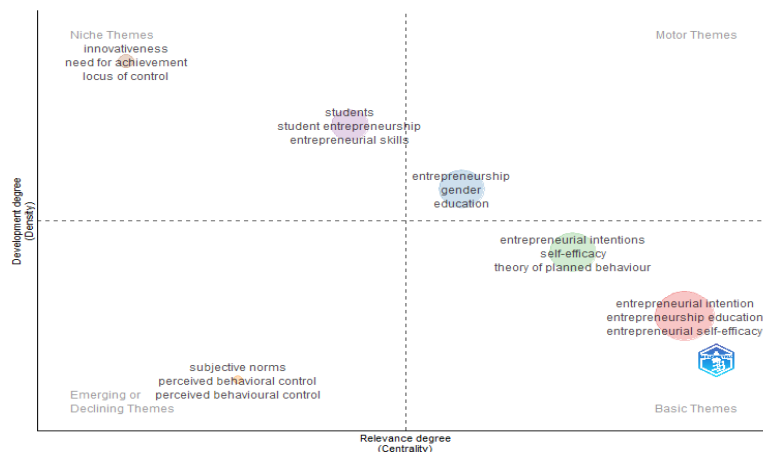
Figure 22*Tree Map Analysis***Figure 23***Trend Topic Analysis*

The trend analysis shows a clear transformation of entrepreneurship studies in terms of the transformation of the research topic from the competencies and individual factors toward the topics of education and technologies. At the initial stage of research (2017-2021), self-employment, skills, competencies, barriers, competence, and Colombia were the main topics, and structural equation modelling, entrepreneurial competences, and perceived behavioral control were popular among the methodological and theoretical frameworks of studies. From 2020 onwards, the topics of entrepreneurial intention (737), entrepreneurship (331), entrepreneurial intentions (300), and entrepreneurship education (446) have gained popularity and dominance, which indicates a clear focus on students' entrepreneurial intentions. In the

period of 2022-2025, literature on entrepreneurial self-efficacy, experiential learning, social entrepreneurial intention, entrepreneurial behavior, digital entrepreneurship, and engineering education has been published. Recent trends (2025-2026) have revealed the importance of topics such as teaching, management education, bibliometric analysis, and problem-solving.

Figure 24

Thematic Map Analysis



In the thematic map, there are six major thematic groups studied within startup and entrepreneurial mindset research literature. Among them, the entrepreneurial intention group is the largest, featuring 39 keywords and 2,528 instances in the literature, including entrepreneurial intention, entrepreneurship education, self-efficacy, Theory of Planned Behavior, higher education, and entrepreneurial mindset. Entrepreneurship group (33 keywords; 1,081 instances) and entrepreneurial intentions group (33 keywords; 1,151 instances) can be considered closely related thematic streams that deal with entrepreneurship education, motivation, innovation, and intentions formation. Students group (27 keywords; 598 instances) focuses on the topic of university students and their educational background. Other thematic groups are subjective norms (104 instances) and innovativeness (153 instances).

4. Discussion

This bibliometric study makes a thorough analysis of the progress, intellectual structure, collaboration patterns, and emerging trends in studies on startups and entrepreneurial mindset among higher education students in the 2016-2026 period (Dissanayake, H. et al. 2022; Ajeel, S. H. et al. 2026). The study analyzes 2,139 documents, published in 509 journals and written by 5,121 authors, showing that the scope of research on the subject has increased significantly and become more multidisciplinary. An annual growth rate of 11.51%, as well as an average number of 23.87 citations per document, show that the field has attracted scholarly attention, while its rather young average age of 3.98 years means that it has gained enough academic recognition.

One of the key results of the study is the rapid development of research related to entrepreneurial intention and entrepreneurship education (Nájera-Sánchez, JJ. et al. 2023; Nguyen, Q.D. & Nguyen, H.T. 2023). The number of articles increased from 76 in 2016 to 293 in 2024, showing an increase in the attention towards the subject under discussion. While there

is no doubt that the number of publications for 2025 and 2026 is smaller, the study correctly considers the possibility that it is related to an incomplete indexing in the years in question, rather than to the lack of interest in the topic (Yasir, N. et al. 2023).

Moreover, keyword and theme analyses show that entrepreneurial intention is the prevailing theoretical concept in the reviewed studies (Xanthopoulou, P. & Sahinidis, A. 2024). As for the former, it was found in 737 articles, followed by entrepreneurship education (446 times) and entrepreneurship (331 times) (Akram, H. W., & Hye, M. N. 2026). Entrepreneurial intentions, students, entrepreneurial self-efficacy, and self-efficacy were other highly frequent concepts (Romero-Galisteo, R.P. et al. 2022). These results suggest that most of the studies have paid attention to investigating why students have entrepreneurial intentions and which factors affect such intentions psychologically and educationally. Specifically, entrepreneurial self-efficacy seems to serve as an essential mediator between education and entrepreneurial intentions (Yousaf, U. et al. 2021)

At the same time, the substantial representation of the Theory of Planned Behavior (TPB) gives additional evidence of how grounded behaviorism and psychology studies of entrepreneurial intention remain (Wang, X.-H. et al. 2023). According to the findings, Ajzen has been the most frequently cited scholar with 2,240 local citations, while Linan and Krueger have taken the second and third places correspondingly. The results of co-citation analysis are similar as Ajzen, (1987) and the Theory of Planned Behavior are seen as the central scholar and intellectual foundation correspondingly (Kim, J. et al. 2022). Cited reference analysis also proves that TPB remains the fundamental basis for explaining entrepreneurial intentions in terms of attitudes, subjective norms, and perceived behavioral control (Al-Jubari, I. 2019).

On the other hand, results show a gradual development of the theory beyond the individual psychological factors. Co-occurrence theory ties entrepreneurial intentions to family, behavior belief, entrepreneurship pedagogy, entrepreneurial education, achievement motivation, and parental modeling (Anton, S., & Mansingh, P. 2025). Therefore, the development of the entrepreneurial mind set is becoming recognized to be multidimensional in nature and not solely dependent on individual psychological attributes but also family environment, educational background, institutional and cultural environment. The emergence of cross-cultural approach and diverse student population is an indication that entrepreneurial development can no longer be explained in terms of one universal psychological theory (Shrivastav, S., & Rao, P. V. M. 2025).

Trend analysis becomes especially important in terms of showing changes in the research agenda. Earlier work from 2017 to 2021 focused on such aspects as self-employment, skills, competencies, barriers, perceived behavioral control, and entrepreneurial competence. Starting from 2020, entrepreneurial intention and entrepreneurship education have started to prevail. Between 2022 and 2025, entrepreneurial self-efficacy, experiential learning, social entrepreneurial intention, entrepreneurial behavior, digital entrepreneurship, and engineering education have become especially important. Recent literature from 2025 to 2026 pays more attention to teaching, management education, problem-solving, and bibliometric analysis. These trends demonstrate the change from a rather limited focus on the presence of entrepreneurial competencies to the development of entrepreneurial mindsets (Mawson, S. et al. 2023).

Another equally significant trend that needs to be highlighted is the rise of technology and digital transformation. The areas of generative artificial intelligence, artificial intelligence, disruptive technologies, digital entrepreneurship, and innovative pedagogies have come up as some newer areas of research. The fact that they have emerged clearly points out the fact that research on entrepreneurial mindset is adapting itself to the evolving technological and economic environment (Odugbesan, J.A. et al. 2026). It has been increasingly recognized that universities will not just have to educate students about entrepreneurship, but they will have to equip them with the skills to recognize opportunities and make value in such an environment (Abd Rahim, L. N. et al. 2025).

However, it is evident from the collaboration analysis that there is both internationalization and fragmentation in the field. While 28.52% of documents feature international collaboration, the author and organizational networks are fragmented into different clusters. At the country level, all 137 countries, except for 10, met the criterion of inclusion, and major countries such as the USA, India, Spain, China, Malaysia, Indonesia, and Vietnam hold key positions in the network. It means that the research on entrepreneurial mindset is already global, though more collaboration can increase knowledge integration in the area.

At the country level, it is evident that research productivity does not necessarily mean research impact. India had the largest number of published articles in the topic, followed by the USA and Spain. On the other hand, the most cited countries were Spain, the USA, and India. However, it should be noted that while the Netherlands was not among the top three countries in terms of publications, the country featured the highest citation rates per paper compared to its number of publications. Hence, it is evident that the number of publications is not the only measure of intellectual influence. In turn, the most productive researcher is Duong CD. However,

The source analysis has proved that International Journal of Management Education, Education and Training, and International Journal of Entrepreneurial Behavior and Research have emerged as key publishers. International Journal of Management Education had a significant presence with 173 publications, h-index of 43, and total 5,633 citations. The predominance of influential publications in entrepreneurship and management education journals reflects that higher education pedagogy has emerged as an important element of research on the entrepreneurial mind-set (Cui, J. 2021; Molaei, R. et al. 2026).

Lastly, the thematic map proves that entrepreneurial intention is the greatest thematic cluster, including 39 keywords and 2,528 instances, entrepreneurship and entrepreneurial intentions are placed second. Students, subjective norms and innovativeness can be also viewed as thematic clusters. Overall, it seems that the field tends to reach a stage at which the concept of entrepreneurial mindset is perceived from the standpoint of its integrated nature with such factors as psychological preparedness, education, learning, innovations and technologies included (Larsen, I. B. 2022).

Overall, the analysis shows that the field of study related to startup and entrepreneurial mindset has shifted from being primarily centered on intention and competence towards becoming a much wider field of research. It turns out that the importance of theoretical bases

and their domination is proven by the prevalence of entrepreneurial intention and TPB, but new areas of interest emerge and include experiential learning, digital entrepreneurship, AI and innovative education. For higher education, it means that besides the development of entrepreneurship through the transmission of business knowledge, there should be a focus on learning environments, developing students' self-efficacy, creativity, opportunity recognition, problem solving, innovations and experience.

5. Conclusion

This study revealed the global knowledge map of the research area of entrepreneurial mindset among higher education students and graduates for the period of 2016 to 2026 through bibliometric analysis. With 2,139 publications from 509 sources and 5,121 authors, the results reveal that there is significant growth in the field, with the annual growth rate being 11.51%. The relatively high average citation rate of 23.87 citations per publication shows that the research is gaining significant academic attention. The increasing number and diversity of publications indicate that entrepreneurial mindset is becoming an important topic of research in the areas of higher education, entrepreneurship, management, and other fields.

As for the intellectual themes, the results of the analysis show that the concept of entrepreneurial intention is the dominant theme in this field. This is followed by such themes as entrepreneurship education, entrepreneurship, entrepreneurial self-efficacy, and self-efficacy. Their prominence is a clear indication that existing literature has focused on understanding the psychological and educational aspects influencing students' intentions and willingness to participate in entrepreneurial activities. At the same time, the Theory of Planned Behavior is the major theoretical base, while the work of Ajzen becomes the most cited author in this field.

On the other hand, the findings show that the study of entrepreneurial mindsets has shifted from its individual and intention-based approach. The incorporation of family background, behavior, entrepreneurial education, motivation to achieve, parental modeling, cross-cultural considerations, and institutional context shows that entrepreneurial mindsets are multi-dimensional. Thus, higher education institutions are not just places where entrepreneurship knowledge is transferred, but are also environments in which self-efficacy, creativity, opportunity identification, innovativeness, problem solving, and entrepreneurial skills are developed.

However, from the trend and thematic analysis, there has been marked change in the research agenda. While early research focused on issues of self-employment, competencies, skills, barriers, and perceived behavioral control, recent literature has shown increasing attention towards entrepreneurship education, entrepreneurial self-efficacy, experiential learning, digital entrepreneurship, social entrepreneurial intention, and entrepreneurial behavior. Increasing focus on issues of generative artificial intelligence, artificial intelligence, disruptive technologies, innovative pedagogies, and technology-enabled entrepreneurship is another indicator that the field is adapting itself to changing technology and educational landscape.

This study also shows the increasingly global nature of this field of research. Contributions from 127 countries and international collaboration in 28.52% of documents indicate international activity in this field. Major contributions come from India, USA, Spain, Malaysia, Indonesia, and China, although differences between publication performance and citation performance show that research impact cannot be measured only by the number of publications. However, collaboration network between authors and organizations remains quite fragmented, indicating room for improvement in international research collaborations.

All in all, the current paper demonstrates that research related to the topic of the entrepreneurial and startup mindset has transformed into an extensive and interdisciplinary field of research, which is progressively oriented at technology. The intellectual basis of the subject matter is still linked with the theories of entrepreneurial intention and behavior, whereas emerging research is heading toward experiential learning, digital entrepreneurship, artificial intelligence, innovation, sustainability, and innovative pedagogy. For higher education organizations, the results of the study point to the importance of moving away from traditional knowledge of entrepreneurship towards learning settings that promote entrepreneurial mindset, self-confidence, creativity, opportunity spotting, experience, and problem-solving skills.

6. Declaration of AI Use

In this study, authors used Biblioshiny® and VOSviewer for bibliometric analysis. Generative AI (ChatGPT) assisted with preliminary keyword identification and proofreading. All intellectual contributions are the original work of the authors. No AI was used to generate, interpret, or synthesize research findings. The authors accept full responsibility.

References

- Abd Rahim, L. N., Ramlee, N. A. Z., Salleh, N. F., & Asnawi, N. H. (2025). The Evolution of Entrepreneurial Mindsets in the Digital Age. *Advances in Business Research International Journal*, 11(1), 31-43. <https://doi.org/10.24191/abrij.v11i1.7046>
- Abdelmagid, A.S., Jabli, N.M., Al-Mohaya, A.Y. & Teleb, A.A.(2025). Integrating Interactive Metaverse Environments and Generative Artificial Intelligence to Promote the Green Digital Economy and e-Entrepreneurship in Higher Education. *Sustainability*, 17(12), 5594. <https://doi.org/10.3390/su17125594>
- Aboobaker, N., D., R. & K., A. Z. (2023). Fostering entrepreneurial mindsets: the impact of learning motivation, personal innovativeness, technological self-efficacy, and human capital on entrepreneurial intention Available to Purchase. *Journal of International Education in Business*, 16 (3): 312–333. <https://doi.org/10.1108/JIEB-10-2022-0071>
- Ajeel, S. H., Abbas, A. F., Keshwan, A. J., & Khatib, S. F. A. (2026). Assessing the global landscape of entrepreneurial universities: A bibliometric perspective. *Industry and Higher Education*, 40(4), 711-736. <https://doi.org/10.1177/09504222251397497>
- Ajzen I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-t](https://doi.org/10.1016/0749-5978(91)90020-t)
- Ajzen, I. (1987). Attitudes, traits, and actions: dispositional prediction of behavior in personality and social psychology. *Advances in Experimental Social Psychology*, 20, 1-63. [https://doi.org/10.1016/S0065-2601\(08\)60411-6](https://doi.org/10.1016/S0065-2601(08)60411-6)
- Akram, H. W., & Hye, M. N. (2026). Entrepreneurship Education as a Moderating Mechanism in the Formation of Entrepreneurial Intentions: A Systematic Integrative Review with

- Implications for Sustainability in Emerging Economies with Special Reference to Oman. *Administrative Sciences*, 16(2), 105. <https://doi.org/10.3390/admsci16020105>
- Al-Jubari, I. (2019). College students' entrepreneurial intention: testing an integrated model of SDT and TPB. *Sage Open*, 9(2), 1-15. <https://doi.org/10.1177/2158244019853467>
- Anton, S., & Mansingh, P. (2025). Entrepreneurial self-efficacy among students: a bibliometric mapping and topic modelling approach. *Entrepreneurship Education*, (8), 177–203. <https://doi.org/10.1007/s41959-025-00138-9>
- Aparicio, G., Iturralde, T., & Maseda, A. (2019). Conceptual structure and perspectives on entrepreneurship education research: a bibliometric review. *European Research on Management and Business Economics*, 25 (3), 105-113. <https://doi.org/10.1016/j.iedeen.2019.04.003>
- Aria, M. & Cuccurullo, C. (2017). Bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, (11)4, 959-975. <https://doi.org/10.1016/j.joi.2017.08.007>
- Ballesteros-Ballesteros, V.A. & Zarate-Torres, R.A. (2025). Mapping the conceptual structure of research on open innovation in university–industry collaborations: a bibliometric analysis. *Frontiers Research Metrics and Analysis*. Doi: 10.1693969.10.3389/frma.2025.1693969
- Baskaran, S., Tangaraja, T., Md Sapry, H.R., & Nallaluthan, K. (2025). Entrepreneurial intent from a crowdfunding perspective. *Global Business and Economics Review*, (33)1, 61-83. 10.1504/GBER.2025.147168
- Bornman, D.A.J. (2026). Youth entrepreneurship development through design thinking and business model innovation. In T. van der Westhuizen (ed.), *Innovative pedagogies for entrepreneurship education* (pp. 249-261). Palgrave Macmillan. https://doi.org/10.1007/978-3-032-07204-7_12
- Bueno, S., Gallego, E. M., Montealegre, R., & Gallego, M. D. (2025). Mapping Entrepreneurial Collaborative Economy Landscape: A Systematic Literature Review with Textometric Analysis. *Economies*, 13(8), 246. <https://doi.org/10.3390/economies13080246>
- Casanovas, L.V., Renart-Vicens, G., Serra, L., & Saurina, C. (2025). Entrepreneurial motivational profiles among university students: The role of universities in fostering entrepreneurship. *The International Journal of Management Education*, 23(2), 1-10. <https://doi.org/10.1016/j.ijme.2025.101160>
- Chen H, Tsang Y, & Wu C. (2023). When text mining meets science mapping in the bibliometric analysis: A review and future opportunities. *International Journal of Engineering Business Management* Volume, (15), 1–15. <https://doi.org/10.1177/18479790231222>
- Cui, J. (2021). The impact of entrepreneurship curriculum with teaching models on sustainable development of entrepreneurial mindset among higher education students in china: the moderating role of the entrepreneurial climate at the institution. *Sustainability*, 13(14), 7950. <https://doi.org/10.3390/su13147950>
- Deveci, İ. (2022). Review of Entrepreneurship Education Literature in Educational Contexts: Bibliometric Analysis. *Participatory Educational Research*, 9(1), 214-232. <https://doi.org/10.17275/per.22.12.9.1>
- Devkota, N., Siddique, M. R., Karki, D. & Thapa, D. (2026). Research in the age of AI – how to plan? A bibliometric exploration of the research lifecycle. *International Research Journal of MMC*, 7(3), 94-116. <https://doi.org/10.3126/irjmmc.v7i3.97169>

- Dissanayake, H., Iddagoda, A., & Popescu, C. (2022). Entrepreneurial Education at Universities: A Bibliometric Analysis. *Administrative Sciences*, 12(4), 185. <https://doi.org/10.3390/admsci12040185>
- 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>
- Duong, C.D., & Vu, T.N. (2025), "Entrepreneurial education and higher education students' e-entrepreneurial intention: a moderated mediation model of generative AI incorporation and e-entrepreneurial self-efficacy". *Higher Education, Skills and Work-based Learning*, 15(5), 1024–1048. <https://doi.org/10.1108/HESWBL-12-2024-0390>
- Edoho, F.M. (2015), Entrepreneurship and socioeconomic development: Catalyzing African transformation in the 21st century. *African Journal of Economic and Management Studies*, Vol. 6 No. 2 pp. 127–147, <https://doi.org/10.1108/AJEMS-03-2013-0030>
- Esfe, M.H., Aghayari, M.J. & Toghraie, D. (2026). Bridging data with decisions: A scientometric-knowledge management analysis of machine learning applications for efficiency in the oil industry (2012–2024). *International Communications in Heat and Mass Transfer*, 172(6), <https://doi.org/10.1016/j.icheatmasstransfer.2026.110744>.
- Gouws, J. (2026). Cultivating Innovative Entrepreneurial Mindsets Beyond the Books. In T. van der Westhuizen (ed.), *Innovative Pedagogies for Entrepreneurship Education* (pp. 49-73). Palgrave Macmillan. https://doi.org/10.1007/978-3-032-07204-7_3
- Halalsheh, N. Z., Almomani, L. M., Alshyaab, Y., Al-Abdallat, Y., Tarawneh, H. H., & Alassaf, F. (2026). A model for promoting entrepreneurial skills in higher education: evidence from Jordan. *Cogent Education*, 13(1). <https://doi.org/10.1080/2331186X.2025.2610037>
- Hanandeh R, Alnajdawi SM, Almansour A, Elrehail H. (2021). The impact of entrepreneurship education on innovative start-up intention: the mediating role of entrepreneurial mindsets. *World Journal of Entrepreneurship, Management and Sustainable Development*, Vol. 17 No. 4 pp. 856–871, <https://doi.org/10.1108/WJEMSD-02-2020-0016>
- Jaiswal, A.K. & Singh, O.P. (2026). Understanding entrepreneurial intentions of university students in India: an integrated approach of theory of planned behavior and entrepreneurial event model. *Asia-Pacific journal of business administration*, 1-26. <https://doi.org/10.1108/APJBA-08-2025-0602>
- Jiang, H., Xiong, W., & Cao, Y. (2017). Research on the Mechanism of Entrepreneurial Education Quality, Entrepreneurial Self-efficacy and Entrepreneurial Intention in Social Sciences, Engineering and Science Education. *Eurasia Journal of Mathematics, Science and Technology Education*, 13(7), 3709-3721. <https://doi.org/10.12973/eurasia.2017.00754a>
- Khalil, H., Welch, V., Grainger, M., & Campbell, F. (2025). Methodology for mapping reviews, evidence maps, and gap maps. *Research Synthesis Methods*, 16(5), 786-796. <https://doi.org/10.1017/rsm.2025.25>
- Kim, J., Tang, L., Wang, X., & Zhang, L. (2022). What factors affect entrepreneurial intention in sharing accommodations? The application of the entrepreneurial event model. *Journal of Global Hospitality and Tourism*, 1(1), 31-50. <https://www.doi.org/10.5038/2771-5957.1.1.1002>
- Kola, V., Ulaj, G., Aliu, D., Kasapi, I., & Drishti, E. (2026). Does content creation strengthen the personality-entrepreneurial intention relationship? evidence from female university students. *Journal of Women's Entrepreneurship and Education*, (1)2, 169-194. <https://doi.org/10.28934/jwee26.12.pp169-194>

- Koropogui, S.B., St-Jean, E. & Chouchane, R. (2026). Developing entrepreneurial identity through entrepreneurship education: A configurational analysis. *The International Journal of Management Education*, 24(2), 1-16. <https://doi.org/10.1016/j.ijme.2026.101396>
- Kumar, R. (2025). *Bibliometric Analysis: Comprehensive Insights into Tools, Techniques, Applications, and Solutions for Research Excellence*. *Spectrum of Engineering and Management Sciences*, 3(1), 45-62. <https://doi.org/10.31181/sems31202535k>
- Larsen, I. B. (2022). Fostering an entrepreneurial mindset: A typology for aligning instructional strategies with three dominant entrepreneurial mindset conceptualizations. *Industry and Higher Education*, 36(3), 236-25. <https://doi.org/10.1177/09504222211038212>
- Lyu, P., Liu, X., & Yao, T. (2026). A bibliometric analysis of literature on bibliometrics in recent half-century. *Journal of Information Science*, 52(2), 324-344. <https://doi.org/10.1177/01655515231191233>
- Mawson, S., Casulli, L., & Simmons, E. L. (2023). A Competence Development Approach for Entrepreneurial Mindset in Entrepreneurship Education. *Entrepreneurship Education and Pedagogy*, 6(3), 481-501. <https://doi.org/10.1177/25151274221143146>
- Mofokeng, T. P. & Mofokeng, N. E. M. (2026). Empowering Youth Through Entrepreneurship Education: The Dut-Ngodini Bunduz Project. In T. van der Westhuizen (ed.), *Innovative Pedagogies for Entrepreneurship Education* (pp. 27-47). Palgrave Macmillan. https://doi.org/10.1007/978-3-032-07204-7_2
- Molaei, R., Yadollahi Farsi, J., Zali, M., Razavi, S.M. & Jafari, P. (2026). A 25-year research on entrepreneurial mindset: a bibliometric analysis and future research directions. *Journal of Global Entrepreneurship Research*, (16)1, 62. <https://doi.org/10.1007/s40497-026-00511-5>
- Nabi, G., Linan, 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. <https://doi.org/10.5465/amle.2015.0026>
- Nájera-Sánchez, JJ., Pérez-Pérez, C. & González-Torres, T. (2023). Exploring the knowledge structure of entrepreneurship education and entrepreneurial intention. *International Entrepreneurship and Management Journal*, 19, 563-597. <https://doi.org/10.1007/s11365-022-00814-5>
- Nguyen, Q.D. & Nguyen, H.T. (2023). Entrepreneurship education and entrepreneurial intention: The mediating role of entrepreneurial capacity. *The International Journal of Management Education*, (21)1, 100730. <https://doi.org/10.1016/j.ijme.2022.100730>
- Odugbesan, J.A., Tafamel, A.E., & Akrawah, D.O. (2026). AI and the entrepreneurial mindset: mapping cognitive adaptability in the age of technological disruption. *Journal of Entrepreneurship in Emerging Economies*, (18)1, 212-236. <https://doi.org/10.1108/JEEE-07-2025-0369>
- Ontong, J. & Fourie, S.-L. (2026). Transformative Learning in Correctional Education: Fostering Economic Inclusion Through Entrepreneurship. In T. van der Westhuizen (ed.), *Innovative Pedagogies for Entrepreneurship Education* (pp. 225-247). Palgrave Macmillan. https://doi.org/10.1007/978-3-032-07204-7_11
- Pan, H., Du, K. Zhou, J. & Zhang, L. (2026). Implicit theories of entrepreneurship and entrepreneurial intentions: the roles of entrepreneurial self-efficacy and person-entrepreneurship fit. *BMC Psychology*, 14:550, 1-13. Pan et al. <https://doi.org/10.1186/s40359-026-04095-3>

- Pessin, V.Z., Yamane, L.H. & Siman, R.R. (2022). Smart bibliometrics: an integrated method of science mapping and bibliometric analysis. *Scientometrics*, 127, 3695–3718. <https://doi.org/10.1007/s11192-022-04406-6>
- Pop-Cohuț, I. C., Chirilă, L. F., Dodescu, A. O. & Chirilă, L. F. (2025). Entrepreneurship education and entrepreneurial intentions: A systematic review. *Journal of Psychological and Educational Research*, 33(2), 236-271. https://www.marianjournals.com/files/JPER_articles/JPER_33_2_2025/Dodescu_et_al_JPER_2025_33_2_236-271.pdf
- Rana, M., Al Mamun, M.A., Hossain, M.K., Rekha, R.S. & Shahedul Alam, S.M. (2025). Understanding the adoption of renewable energy technologies by households in South Asia: a theory of planned behavior perspective. *Discov Sustain* 6, 477. <https://doi.org/10.1007/s43621-025-01051-w>
- Romero-Galisteo, R.P., González-Sánchez, M., Gálvez-Ruiz, P., Palomo-Carrión, R., Casuso-Holgado, M.J. & Pinero-Pinto, E. (2022). Entrepreneurial intention, expectations of success and self-efficacy in undergraduate students of health sciences. *BMC Medical Education*, (22)679, 1-7. <https://doi.org/10.1186/s12909-022-03731-x>
- Servantie, V., Cabrol, M., Guieu, G. & Boissin, J.-P. (2016). Is international entrepreneurship a field? A bibliometric analysis of the literature (1989–2015). *J Int Entrep* (14), 168–212, <https://doi.org/10.1007/s10843-015-0162-8>
- Shabbir, M.S., Batool, F., & Mahmood, A. (2022), "Trends in entrepreneurship education: a systematic literature review". *Higher Education, Skills and Work-based Learning*. (12)6,1040–1056, <https://doi.org/10.1108/HESWBL-05-2022-0105>
- Shrivastav, S., & Rao, P. V. M. (2025). Defining, cultivating, and assessing entrepreneurial mindset in higher education: a systematic review and future research directions. *European Journal of Engineering Education*, 50(5), 1126–1159. <https://doi.org/10.1080/03043797.2025.2490551>
- Shrivastav, S., & Rao, P. V. M. (2025). Defining, cultivating, and assessing entrepreneurial mindset in higher education: a systematic review and future research directions. *European Journal of Engineering Education*, 50(5), 1126–1159. <https://doi.org/10.1080/03043797.2025.2490551>
- Silwal, Y. B., Poudel, S. K., Dahal, K. P., Thapaliya, S., & Sah, B. K. (2022). Theoretical Foundations for Entrepreneurship Development Program. *Nepal Journal of Multidisciplinary Research*, 5(5), 109-118. <https://doi.org/10.3126/njmr.v5i5.51809>
- Syed, R. T., Singh, D., & Spicer, D. (2023). Entrepreneurial higher education institutions: Development of the research and future directions. *Higher Education Quarterly*, (77)1, 158–183. <https://doi.org/10.1111/hequ.12379>
- Talukder, S. C., Lakner, Z., & Temesi, Á. (2024). Development and State of the Art of Entrepreneurship Education: A Bibliometric Review. *Education Sciences*, 14(3), 295. <https://doi.org/10.3390/educsci14030295>
- Terjesen, S., Hessels, J., & Li, D. (2016). Comparative International Entrepreneurship: A Review and Research Agenda: A Review and Research Agenda. *Journal of Management*, 42(1), 299-344.
- Wang, X.-H., You, X., Wang, H.-P., Wang, B., Lai, W.-Y., & Su, N. (2023). The Effect of Entrepreneurship Education on Entrepreneurial Intention: Mediation of Entrepreneurial Self-Efficacy and Moderating Model of Psychological Capital. *Sustainability*, 15(3), 2562. <https://doi.org/10.3390/su15032562>

- Winkler, C., Hammada, B., Noyes, E., & Van Gelderen, M. (2023). Entrepreneurship education at the dawn of generative artificial intelligence. *Entrepreneurship Education and Pedagogy*, 6(4), 579-589. <https://doi.org/10.1177/25151274231198799>
- Wu Y.J., & Wu T. (2017). "A decade of entrepreneurship education in the Asia Pacific for future directions in theory and practice". *Management Decision*, (55)7, 1333–1350. <https://doi.org/10.1108/MD-05-2017-0518>
- Xanthopoulou, P., & Sahinidis, A. (2024). Students' Entrepreneurial Intention and Its Influencing Factors: A Systematic Literature Review. *Administrative Sciences*, 14(5), 98. <https://doi.org/10.3390/admsci14050098>
- Xanthopoulou, P., & Sahinidis, A. (2025). Exploring the Impact of Entrepreneurship Education on Social Entrepreneurial Intentions: A Diary Study of Tourism Students. *Administrative Sciences*, 15(3), 111. <https://doi.org/10.3390/admsci15030111>
- Yan, L., & Zhiping, W. (2023). Mapping the Literature on Academic Publishing: A Bibliometric Analysis on WOS. *Sage Open*, 13(1), 1-16. <https://doi.org/10.1177/21582440231158562>
- Yasir, N., Babar, M., Mehmood, H. S., Xie, R., & Guo, G. (2023). The environmental values play a role in the development of green entrepreneurship to achieve sustainable entrepreneurial intention. *Sustainability*, 15(8), 6451. <https://doi.org/10.3390/su15086451>
- Yousaf, U., Ali, S.A., Ahmed, M., Usman, B., & Sameer, I. (2021). From entrepreneurial education to entrepreneurial intention: a sequential mediation of self-efficacy and entrepreneurial attitude. *International Journal of Innovation Science*, (13)3, 364–380. <https://doi.org/10.1108/IJIS-09-2020-0133>