International Journal of Environmental Sciences
ISSN: 2229-7359
Vol. 11 No. 24s, 2025
https://theaspd.com/index.php

Linking Entrepreneurial Intentions And Entrepreneurial Education: A Bibliometric Study

Anjali[1*] and Prof. Satyawan Baroda[2]
[1*,2]Institute of Management Studies and Research, Maharshi Dayanand University, Rohtak, India

Abstract
Purpose: *To analyze existing literature on entrepreneurial education's influence on entrepreneurial intentions using bibliometric methods to identify trends, gaps, and patterns.*
Design/methodology/approach*: The research data has been arranged using a bibliometric analysis, which includes a literature review and a thematic analysis. Scopus was used to collect data from 2010 to 2024, and 333 articles were finished. The analysis was conducted using Vos Viewer, R Studio, and Excel.*
Findings*: Entrepreneurial education has seen rising global academic interest, with 333 documents reflecting a 17.57% annual growth, led by significant contributions from Indonesia, Malaysia, and China.*
Research limitations/implications*: This study's limitations include reliance o Scopus, excluding databases like Web of Science. Additionally, the search was limited to "Entrepreneurial Education" and "Entrepreneurial Intentions," omitting synonyms and other languages.*
Practical implications*: The study highlights the need for inclusive, culturally aware entrepreneurship education that promotes confidence and innovation. In order to improve gender parity and the caliber and accessibility of entrepreneurship education, it encourages global scholarly collaboration and evidence-based policies.*
Originality/value*: This study uses cluster and bibliometric analysis to explore entrepreneurial education and intentions, offering originality by comparing entrepreneurship- related occurrences, tasks, and processes in modern social and economic systems.*
Keywords*: Entrepreneurial Intentions, Education, Business, Bibliometric analysis, Economic growth, VOSviewer, Biblioshiny*

1. INTRODUCTION

In recent years, there has been a growing interest in understanding how entrepreneurial education influences the growth of entrepreneurial aspirations, particularly among youngsters and learners in college (Nabi *et al.*, 2017)(Rideout and Gray, 2013). Entrepreneurial intention— opting to set up a new business—is often explained using Ajzen's (1991) Theory of Planned Behavior, which highlights the importance of attitudes, social norms, and self-confidence. On the other hand, entrepreneurial education plays a key role in shaping students' skills, motivation, and belief in their ability to become entrepreneurs (Martin *et al.*, 2013)(Karimi, 2020). Although a large number of studies have explored these topics, the research remains scattered across different fields and countries (Zhang *et al.*, 2022). This study uses bibliometric analysis to bring these studies together and map the trends, key contributors, and emerging themes in the field (Donthu *et al.*, 2021). It offers a clearer picture of how research in this area has evolved over time. The significance of context is further highlighted by systematic literature reviews that analyze the scholarly discourse on the subject.

ENTREPRENEURIAL INTENTION

The study of entrepreneurial intention has grown to be an exciting area of study. It offers a means to find out whether people are committed to starting new businesses. The personal and contextual factors that drive an individual to launch an entrepreneurial venture are demonstrated by entrepreneurship research(Martín-Navarro *et al.*, 2023). A common framework for understanding entrepreneurial intention is the Theory of Planned Behavior (TPB), which holds that three main factors impact an individual's intention toward a behavior: attitude toward the behavior, subjective norms, and perceived behavioral control. in relation to entrepreneurship (Aj 1991). One of the most important ideas in comprehending entrepreneurial behavior is entrepreneurial intention. It describes the deliberate mental state that exists before someone decides to launch a new project or company (kurger 1993). Expanded this paradigm to demonstrate how favorable views toward self- employment significantly boost entrepreneurial intentions(Kolvereid, 1996). (Krueger *et al.*, 2000) asserted that one of the most important indicators of entrepreneurial intention is individual self- efficacy, or the conviction that one can launch and run a business.For the purpose of forecasting entrepreneurial activity and creating policies that encourage entrepreneurship, it is essential to comprehend entrepreneurial

intentions (Shook, 2003). (Turker and Sonmez Selcuk, 2009) shown that the availability of entrepreneurial education, government policies and funding opportunities all have a positive influence on the intentions of entrepreneurs. (Gupta *et al.*, 2009) Differences in self-efficacy, risk tolerance, and access to entrepreneurial resources are frequently cited as the reasons for this discrepancy. (McGee *et al.*, 2009) Higher levels of entrepreneurial self-efficacy have been linked to an increased likelihood of developing entrepreneurial intentions, according to studies. (Zhao and Seibert, 2006) Numerous research endeavors have investigated the influence of the "Big Five" personality traits—conscientiousness ,extroverted and friendly behavior , neuroticism, and openness to new experiences—on the aspirations of entrepreneurs. (Rauch and Frese, 2007) Openness to experience and conscientiousness, for example, appear to be positively correlated with entrepreneurial intentions, according to meta-analytic evidence .Subjective norms, or the sense of social pressure to act or not act entrepreneurially, have been demonstrated to affect entrepreneurial intentions, albeit with a generally smaller impact than attitude (Van Gelderen *et al.*, 2015). People who have a favorable attitude toward entrepreneurship are more likely to develop entrepreneurial intentions, according to a number of studies (Liñán and Chen, 2009) (Nowiński and Haddoud 2019). Entrepreneurial intention may be influenced by the support that they receive from the government, mentors, and financial intuitions (Jena, 2020).

ENTREPRENEURIAL EDUCATION

Midway through the 20th century, entrepreneurship was first introduced into formal education, mostly in business schools(Kuratko, 2005). Given that entrepreneurship is a hands-on endeavor, action-based learning models—which place an emphasis on active student participation—have grown in popularity(Rasmussen and Sørheim, 2006).(Fayolle *et al.*, 2006) declare that the best way to teach entrepreneurship is through experiential learning, in which students work on projects, simulations, or actual business launches .(Fayolle and Gailly, 2008) Even with its extensive use, entrepreneurial education still faces a number of obstacles. One criticism is that the lack of a standard curriculum in entrepreneurial education frequently results in uneven learning outcomes amongst institutions A few academics contend that when emphasizing business start-up skills, entrepreneurial education can overlook other crucial entrepreneurial abilities like creativity and critical thinking (Pittaway and Cope, 2007). Economics, management, marketing, psychology, and other interdisciplinary subjects are frequently incorporated into entrepreneurial education to promote a comprehensive understanding of entrepreneurship (Samwel Mwasalwiba, 2010). With the aim of developing learners' entrepreneurial mindset and skills, entrepreneurial education is a rapidly developing field in both academic and practical discourse. In many sectors, it is acknowledged as an essential element for fostering innovation, economic growth, and opportunities for self-employment(Neck and Greene, 2011). (Shinnar *et al.*, 2012) This disparity can be significantly closed by entrepreneurial education, which gives female students the knowledge, abilities, and self-assurance they need to pursue their own businesses. Studies show that because of their higher self-efficacy and motivation, students who receive entrepreneurial education are more likely to opt for entrepreneurial careers(Nabi *et al.*, 2017). The majority of the research on entrepreneurship education has been done in the context of university education, with graduate or postgraduate students serving as the subjects. The non-university population, and secondary school students in particular, have received very little attention(Shahin *et al.*, 2021). Since entrepreneurship education can help students grasp the real practicality of how a business operates as well as its potential for profit, it has a greater impact on students' intentions to launch a business (Hidayatulloh and Ashoumi, 2022) (Ferdousi *et al.*, 2025).

ENTREPRENEURIAL INTENTIONS AND ENTREPRENEURIAL EDUCATION

One common explanation for why people have entrepreneurial intentions is self-efficacy, which is the belief in one's capacity to carry out tasks successfully(Boyd and Vozikis, 1994). Promoting entrepreneurial intentions requires educational interventions that are focused on cultivating an entrepreneurial mindset, which is characterized as an innovative, resilient, and opportunity- focused way of thinking(Gibb, 2002) Experiencing case studies, business simulations, and real- life entrepreneurial experiences—all crucial for cultivating entrepreneurial intentions—in the context of entrepreneurial education enhances this capacity(Peterman and Kennedy, 2003). (Souitaris *et al.*, 2007) found that involvement in entrepreneurship programs greatly enhanced students' entrepreneurial intentions when a study was conducted on students from various European universities. (Zellweger *et al.*, 2011) Students' prior exposure to entrepreneurship, whether via family companies or other entrepreneurial experiences, mitigates the impact of entrepreneurial education on their intentions. Since they may already have greater aspirations to start their own businesses,

students from entrepreneurial families may benefit less marginally from education. (Bae *et al.*, 2014) a meta-analysis was carried out, and the results indicated that, although the effect size varies depending on the type and duration of education, entrepreneurial education positively impacts entrepreneurial intentions. Intention-focus education places equal emphasis on knowing-why and know-who in addition to know-what and know-how. As a result, this method offers more comprehensive instructional materials for an entrepreneurship course or program that promotes students' emotional intelligence (EI; awareness education) (Sun *et al.*, 2017). Numerous scholars have examined how entrepreneurial education and intentions are mediated by entrepreneurial self-efficacy, entrepreneurial mindset, and entrepreneurial opportunity recognition. This relationship has been examined through a variety of lenses (Barba- Sánchez and Atienza-Sahuquillo 2018). The intention to start a business was positively and significantly influenced by entrepreneurial education (Jiatong *et al.*, 2021). Significantly positive causal relationships have been discovered in developing countries between students' entrepreneurial intentions and entrepreneurship education, suggesting that educational institutions can help students develop higher levels of self-efficacy.Research on hidden influences in the relationship between EE and entrepreneurial intention is becoming more and more extensive. The growing significance of entrepreneurship as a catalyst for innovation and economic expansion. Students who receive instruction in this area may learn more and develop entrepreneurial knowledge, skills, and behavior, which will help them become highly ambitious entrepreneurs. Students' entrepreneurial intent and behavior are intended to be encouraged by incorporating entrepreneurship into the curriculum, and the entrepreneurial mindset has been found to have correlational potential(Sun *et al.*, 2023). Although the effects of inspiration, passion, ambiguity tolerance, and beliefs are well understood in this connection, research on mindsets is still mostly unexplored (Haddoud *et al.*, 2024). The development of entrepreneurship has been facilitated by the recognition by numerous studies of a connection between EE and entrepreneurial activity. These entrepreneurial endeavors encourage people to pursue careers in entrepreneurship because they promote innovation and job creation(Amaral *et al.*, 2024). The explicit focus on fostering and encouraging entrepreneurship and intentions through social interactions (know-who), entrepreneurial skills and abilities (know-how), entrepreneurial knowledge (know-what), and entrepreneurial values and motivations (know-why)distinguishes entrepreneurship education from general education(Kassim *et al.*, 2024). Academic institutions' classroom lectures are insufficient to achieve practical entrepreneurship and technological commercialization(Anjum *et al.*, 2024). In order to develop and incorporate entrepreneurship courses into their curricula and to offer entrepreneurship majors, higher education institutions worldwide have increased their funding(Al-Omar *et al.*, 2024).

Educational resources, interesting teaching techniques, and supportive learning environments all support students' entrepreneurial aspirations(Abbes, 2024).Students' propensity to consider and pursue entrepreneurial careers can be greatly influenced by educational programs that boost their confidence in doing so(Usman *et al.*, 2022) (Ferdousi *et al.*, 2025).

1.1 Objective of the study

The principal aim is to conduct a thorough examination of link of entrepreneurial education on entrepreneurial intentions, as well as to pinpoint existing advancements, prospective areas for investigation, and forthcoming paths. The measurement of the yearly increase in publications, their distribution among nations, The primary focus areas are their conceptual framework, publication pattern, and analysis of clusters in relation to the research produced in this area.

Originality of the study

As far as we are aware, this is the first study to use cluster analysis and bibliometric analysis together on entrepreneurial education and intentions, which supports the study's originality. In the area of entrepreneurship, the study draws comparisons with phenomena, procedures, and events found in modern economic and social reality.

1.2 Research questions

This study looked into the following research questions:

1. What publication trend is entrepreneurial education and entrepreneurial intentions currently following?
2. Which nations have the highest number of citations on the list?
3. What journals are relevant in this field?
4. Which writers in this field have had the greatest influence?
5 Which articles in this field are the most well-known?

6. What is the intellectual framework of the current research on entrepreneurial education and entrepreneurial intentions?
7. Which themes related to entrepreneurial education and entrepreneurial intentions are the most well-liked by scholars?
8. What fields related to entrepreneurial education and entrepreneurial intentions require more research?

2. METHODOLOGY

Using statistical and mathematical techniques, bibliometric analysis research finds patterns in previously published works (Singh and Dhir 2019). Studies using bibliographic data map and examine published works across a range of academic fields. This work makes use of the Bibliometrix R-package, a R language tool created by (Aria and Cuccurullo 2017) Bibliometrix is an open-source R programming language statistical package with mathematical functions, statistical techniques, and visualization features. R Studio is compatible with Linux and Windows operating systems thanks to its graphical user interface. The Bibliometrix R-package (Aria and Cuccurullo 2017) offers a set of methods for quantitative bibliometric and scientometric research. Biblioshiny, an online tool that comes with the Bibliometrix package, was used in this study to analyze the data. Scientific mapping analysis is carried out via Biblishiny using the main automated workflow components of Bibliometrix. Therefore, in order to examine the fragmented work and evaluate significant patterns, this study employs bibliometric analytical techniquesrelated to its conceptual and social structure (Solanki and Baroda 2024). Following a thorough analysis of the prior research, we found that a few studies in this field are comparable to ours. Nonetheless, from 2010 to 2024, we employed bibliometric research to examine the connection between entrepreneurial education and intention. Our study used bibliometric analysis to assess the study focused on an organized and systematic review of the literature regarding the connection between the dynamics of the present, potential research topics, and future directions on entrepreneurial education and intentions.

2.1 Research method

To find potential trends and correlations and gauge the influence of authors, citations, and scientific output, this study employed performance analysis and evaluation methodologies. Also, this research represented the structural characteristics of scientific output using bibliometric mapping (Cobo et al. 2011; van Eck and Waltman 2011). Using the occurrence of indexed keywords, productive researchers, and publications from 2010 to 2024, the study focused on identifying research hotspots (Aggarwal and Karwasra 2024a).

One of the main areas of social science research is bibliometric evaluation, which refers to a statistical examination of patterns observed in scholarly works such as books, journals, articles, and proceedings from conferences. The purpose of this is to comprehend "global trends and the knowledge structure of a research domain" (Amirbagheri et al. 2019; Baier-Fuentes et al. 2019; Bonilla, Merigó, and Torres-Abad 2015; Donthu et al. 2021; Ellegaard and Wallin 2015; Tan, Shi, and Tang 2018; Hood and Wilson 2001; Martínez-López et al. 2018 ;Aggarwal and Karwasra 2024b).

To further examine the dynamics of the connection between economic growth and free trade Expansion now and in the future, cluster analysis is carried out using VOS viewer (van Eck and Waltman 2011). Additionally, the study uses co-citation analysis, which uses citation data to find relationships between authors, journals, or documents, whereas the purpose of bibliographic coupling/mapping is to assess the citing papers.In a similar vein, co-word analysis looks at article keywords that are mainly used to assess a topic's conceptual framework.

2.2 Search strategy

We developed a search plan with certain constraints and limitations (Table 1). Because it is the largest and most widely used database for the assessment of scientific research in this field, the Scopus database was chosen as the primary data source. To create a connection between the phrases "entrepreneurial education" and "entrepreneurial intentions," a data query was created based on these keywords for the previous 14 years.

Following query setup, two filters were applied: one for document type (English language articles; 470 articles were retrieved) and another for subject area (social science; business management accounts; 333 articles were retrieved).The aforementioned articles' influence on the scientific community was evaluated through an examination of several factors, including the annual growth of publications within this field, the distribution of publications across national boundaries the

,h-index, author and journal analyses, publication trends, the number of citations these publications receive, and the field's intellectual framework. With respect to the body of research on this subject, the analysis was limited to business management accounts articles published in the social science (see Table 2 for further information). After the data set was cleaned, 333 articles were chosen utilizing the search strategy listed in Table1. Table 2 makes it evident that 979 authors from various nations wrote 333 articles between 2010 and 2024 for 163 different sources regarding the connection between entrepreneurial education and intentions. There are 25,05 citations on average per article.

3. DATA ANALYSIS AND RESULTS

3.1 Annual evolution of publications

TABLE 1: Search strategy and process of data retrieval

Date	02.06.2024
Database	Scopus
Search Strings	Entrepreneurial Education and Entrepreneurial Intensions
First Stage Filters	Total Documents: 473; Period: 2010-2024
Results	470
Second Stage Filters	Document Type: Article; Language: English; Subject Areas: Business Management Accounts and Social Science
Results	333

Source: Author's own elaborate

We looked at the yearly increase in publications using data from the Scopus databaseon entrepreneurial education and intentions in order to answer the first question.

(Q1): "What publication trend are entrepreneurial education and intentions currently following?".

The current publication trend suggests that the scientific community is becoming more interested in this area and recognizes the significance of the connection between the intentions of entrepreneurs and their capacity of education in this area.

TABLE 2: Metainformation of the data set

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2011:2024
Sources (Journals, Books, etc.)	163
Documents	333
Annual Growth Rate %	17.57
Document Average Age	3.48
Average citations per doc	25.05
References	19189
Keywords Plus (ID)	195
Author's Keywords (DE)	765
Authors	979

Source: Author's calculation using Biblioshiny R

This dataset includes 333 documents from 163 journals and books, covering research on entrepreneurship and gender from 2011 to 2024. The field has experienced a strong annual growth rate of 17.57%, reflecting increased research interest. The average age of the documents is 3.48 years, indicating their recency and relevance. Each document is highly cited, with an average of
25.05 citations, showing substantial academic impact. The dataset encompasses a wide range of topics with 765 author keywords and 195 Keywords Plus terms. Nearly 1,000 authors contributed to this body of work, with just 24 publications written by a single author, demonstrating the collaborative nature of the study.

Each paper typically has 3.32 co-authors, and international collaborations are used in 24.92% of the papers, indicating a strong global research community in this field. As a whole, this dataset shows a vibrant, quickly expanding field with impactful, cooperative research endeavors. The broad and deep body of research in gender studies and entrepreneurship is reflected in the high citation rates and heavy keyword use.

3.2 Country-wise distribution of publications

Tables 3, 4, and 5 deal with Question 2: "Which countries are the most cited on the list? "The top ten nations for gender and entrepreneurship research contributions are shown in the table. With 120 contributions, Indonesia has made the most, ahead of Malaysia with 103. Counting 73 and 72 contributions, respectively, China and India are also significant. 54 documents from Romania and 48 from Spain. The contributions from the USA and Brazil are 39 and 41, respectively. Portugal and Pakistan, with 34 and 31 contributions respectively, complete the top 10. This distribution shows a broad and diverse engagement in this research area and emphasizes the significant global interest in the field, with a strong presence from Asia, Europe, and the Americas. (Table 3) 120

Figure 1: Annual evolution of publications, Scopus Database Source: Author's calculation using Biblioshiny R

The table lists international research contributions on gender and entrepreneurship. China has the most articles—21, or 6.3% of the total—while Indonesia and India each have 18. With 17 articles, Malaysia has the greatest percentage of multi-country publications (41.2%). With 16 and 12 articles submitted, respectively, Spain and Romania are the two countries with the largest percentage of publications from a single nation. Brazil has the largest percentage of multi-country publications (63.6%) with 11 articles. With moderate levels of international collaboration, the USA and Italy contribute 10 and 9 articles, respectively, and Pakistan, with 8 articles, demonstrates a high rate of multi-country publications (62.5%). Different levels of international collaboration among nations are reflected in this distribution. (Table 4).

The top ten academic institutions that are involved in gender-related entrepreneurship research are listed in the table. Ranking highest with 33 articles is the National Economics University, followed by Universitas Negeri Malang with 29 articles. Ranking third with 20 articles is Universitas Negeri Jakarta.With nine articles, the University of Oradea comes in fourth place; Ho Chi Minh City Open University and Universidad de La Laguna each have eight articles. Three prominent universities have contributed seven articles each to this research area: International University of Sarajevo, Ningbo University, and West University of Timişoara. Universiti Malaysia Kelantan, with six articles, rounds out the top 10. With a diverse range of universities exhibiting varying degrees of research output, this distribution showcases the top universities in the field. (Table 5).

TABLE 3: Top 10 Country-wise distribution of publications

S.NO.	Country	Freq
1	INDONESIA	120
2	MALAYSIA	103
3	CHINA	73
4	INDIA	72
5	SPAIN	54
6	ROMANIA	48
7	BRAZIL	41

8	USA	39
9	PORTUGAL	34
10	PAKISTAN	31

Source: Author's elaboration

TABLE 4: Top 10 Country-wise influential publications based on citations

S.NO.	Country	Articles	Articles %	SCP	MCP	MCP %
1	CHINA	21	6.3	16	5	23.8
2	INDIA	18	5.4	15	3	16.7
3	INDONESIA	18	5.4	16	2	11.1
4	MALAYSIA	17	5.1	10	7	41.2
5	SPAIN	16	4.8	14	2	12.5
6	ROMANIA	12	3.6	11	1	8.3
7	BRAZIL	11	3.3	4	7	63.6
8	USA	10	3	6	4	40
9	ITALY	9	2.7	6	3	33.3
10	PAKISTAN	8	2.4	3	5	62.5

Source: Author's elaboration

3.3 Journal analysis

A bibliometric analysis was conducted on 333 articles in order to examine the pertinent journals in this field. Table 6's outcomes. To determine the most active journals and areas of interest in the field, it is imperative for a research scholar to comprehend the distribution of articles across different academic sources. An overview of articles from various journals that add to the body of knowledge on gender and entrepreneurship research is presented in the table above. With 20 articles, "Sustainability (Switzerland)" comes in first, indicating that entrepreneurship studies place a strong emphasis on sustainable practices. With 17 papers, "Education and Training" comes in second, showing a keen interest in how education influences entrepreneurial aspirations.

TABLE 5: Top 10 institutions

Rank	Affiliation	Articles
1	NATIONAL ECONOMICS UNIVERSITY	33
2	UNIVERSITAS NEGERI MALANG	29
3	UNIVERSITAS NEGERI JAKARTA	20
4	UNIVERSITY OF ORADEA	9
5	HO CHI MINH CITY OPEN UNIVERSITY	8
6	UNIVERSIDAD DE LA LAGUNA	8
7	INTERNATIONAL UNIVERSITY OF SARAJEVO	7
8	NINGBO UNIVERSITY	7
9	WEST UNIVERSITY OF TIMIŞOARA	7
10	UNIVERSITI MALAYSIA KELANTAN	6

Source: Author's elaboration

TABLE 6: Main 10 journals of publication

S.NO.	Sources	Articles
1	SUSTAINABILITY (SWITZERLAND)	20
2	EDUCATION AND TRAINING	17
3	INTERNATIONAL JOURNAL OF MANAGEMENT EDUCATION	15
4	INTERNATIONAL JOURNAL OF ENTREPRENEURIAL BEHAVIOURAND RESEARCH	11
5	INTERNATIONAL ENTREPRENEURSHIP AND MANAGEMENT JOURNAL	8
6	ADMINISTRATIVE SCIENCES	6
7	COGENT BUSINESS AND MANAGEMENT	6
8	COGENT EDUCATION	6
9	JOURNAL OF ENTREPRENEURSHIP EDUCATION	6
10	STUDIES IN HIGHER EDUCATION	6

Source: Author's elaboration

With their respective contributions of 15 and 11 articles, the "International Journal of Management Education" and the "International Journal of Entrepreneurial Behavior and Research" appear to be concentrating on the

behavioral and educational facets of entrepreneurship. The other journals contribute six to eight articles apiece, including the Journal of Entrepreneurship Education, the International Entrepreneurship and Management Journal, the Administrative Sciences, Cogent Business and Management, Cogent Education, and Studies in Higher Education. Because it covers sustainability, education, management, and behavior, this distribution emphasizes the multidisciplinary nature of entrepreneurship research. It is easier to identify important journals for a literature review and possible publication channels when one is aware of this spread.

3.4 Author analysis

We looked into the authors who were most cited using the h-index in order to respond to the fourth research question, which asked which authors in this field had had the biggest impact. Top cited authors are shown in Table 7. Including total article counts as well as fractionalized counts that account for co-authorship, the table lists the contributions of writers in the area of entrepreneurship and gender. With 13 papers and a fractionalized count of 2.69, Wibowo A has the highest total, indicating a substantial amount of teamwork. A fractionalized count of 2.36 and 12 articles demonstrates Narmaditya BS's noteworthy productivity. Duong CD has a fractionalized count of 5.57, indicating significant individual contributions, despite having fewer articles (10) than other authors. In spite of their smaller publication count, authors like Kusumojanto DD and Saptono A exhibit a high degree of collaboration. The fractionalized counts aid in a clearer understanding of the unique contributions made to the field by each researcher.

3.5 Most relevant publications

The impact of several influencing factors, including gender, is highlighted in this table which compiles important study findings about the relationship between entrepreneurship education and entrepreneurial aspirations. According to the quantity of citations, the studies are arranged in order of relevance and influence on academia. Published in "Entrepreneurship Theory and Practice," Tae Jun Bae's most cited study (1016 citations) offers a meta-analytic review of how entrepreneurship education influences entrepreneurial intentions. The 2011 publication of "International Entrepreneurship and Management Journal" with 583 citations by LIÑÁN F delves into the impact of education on the degree of entrepreneurial intention. Published in "Studies in Higher Education," NOWIŃSKI W's 2019 study explores the effects of gender, self-efficacy, and entrepreneurship education on university students' intentions to pursue entrepreneurship in the Visegrad countries. It has received 345 citations. Conversely, SÁNCHEZ JC, who also published in the "International Entrepreneurship and Management Journal" in 2011, examines, with 310 citations, how university education affects entrepreneurial competencies and the desire to launch new businesses. Additionally, AHMED T's research, which was published in 2020 in "The International Journal of Management Education" and has received 166 citations, looks at how entrepreneurship education initiatives in developing nations affect people's intentions to launch new businesses. A 2019 study by VODĂ AI, published in "Sustainability," with 164 citations, evaluates the influence of personality traits and entrepreneurship education on the entrepreneurial intentions of business students.

TABLE 7: Top 10 authors

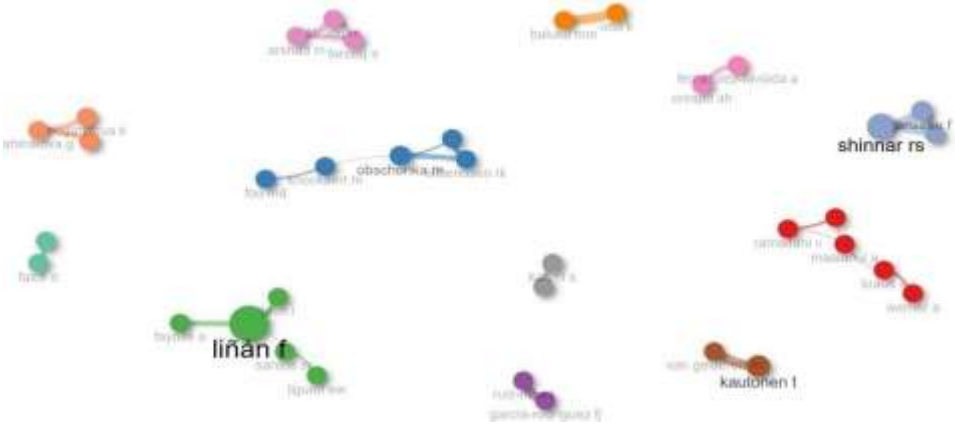
S.NO.	Authors	Articles	Articles Fractionalized
1	WIBOWO A	13	2.69
2	NARMADITYA BS	12	2.36
3	DUONG CD	10	5.57
4	KUSUMOJANTO DD	6	1.24
5	SAPTONO A	5	1.07
6	ADELAJA AA	4	2.08
7	FEDER E-S	4	1.28
8	WARDANA LW	4	0.58
9	DANIEL AD	3	1.03
10	JERMSITTIPARSERT K	3	1.33

Source: Author's elaboration

With 123 citations from 2019, SHAHAB Y's research examines how self-efficacy and entrepreneurial intention are shaped by entrepreneurial creativity and education. It was published in the "International Journal of Entrepreneurial Behavior & Research." The 2011 study by BYABASHAIJA W, which was published in the "Journal of Developmental Entrepreneurship," has been cited 120 times and examines the effects of college entrepreneurial education on attitudes and intentions to start a business in Uganda. The 2018 study by PASSARO R, published in the "Journal of Intellectual Capital," looks at the relationship between human capital and entrepreneurial intention. It has 116 citations. Last but not least, TURNER

T's 2018 study on entrepreneurial education outside of traditional business schools was published in "Small Business Management" and has received 113 citations. Collectively, these studies underscore entrepreneurship education's important role in encouraging entrepreneurial aspirations, with considerations of self-efficacy, personality traits, and gender playing pivotal roles.

Figure 2: Collaboration network of top authors



Source: Author's elaboration using biblioshiny R

With their varied scientific backgrounds, the remaining authors contribute significantly to the field of entrepreneurial education and intentions. To explore the importance of the relationship between authors, the top authors' bibliographic coupling is produced. Figure 2's map displays ten distinct clusters, and the lines indicate the relationships between the writers' research projects. The author with the greatest influence is included in the red cluster (Figure 2) (Table 8).

TABLE NO. 8

Sr. no.	Title	Author'	Total Citations	Year	Source Title
1	The Relationship between Entrepreneurship Education and Entrepreneurial Intentions:A Meta– Analytic Review	TaeJun Bae	1016		Entrepreneurship theory and practices
2	Factor affecting entrepreneurial intention levels: a role for education	Linan F	583	2011	International entrepreneurship andmanagement journal
3	The impact of entrepreneurship education, entrepreneurial self-efficacy and gender on entrepreneurial intentions of university students in the Visegrad countries	Nowinski W	345	2019	Studies in higher education
4	University training for entrepreneurial competencies: Its impact on intention of venture creation	Sanchez Jc	310	2011	International entrepreneurship and management journal
5	Entrepreneurship education programmes: How learning, inspiration and Resources affect intentions for new venture creation in a developing economy	Ahmed T	166	2020	The international journal of management education
6	Impact of Personality Traits and Entrepreneurship Education on Entrepreneurial Intentions of Business and Engineering Students	Voda Ai	164	2019	Sustainability

7	Entrepreneurial self-efficacy and intention: do entrepreneurial creativity and education matter?	Shahab Y	123	2019	International Journal of Entrepreneurial Behavior & Research
8	The Impact Of College Entrepreneurial Education On Entrepreneurial Attitudes And Intention To Start A Business In Uganda	Byabasja W	120	2011	Journal of developmental entrepreneurship
9	The impact of higher education on entrepreneurial intention and human capital	Passaro R	116	2018	Journal of Intellectual Capital
10	Entrepreneurship Unleashed: Understanding Entrepreneurial Education outside of the Business School	Turner T	113	2018	Small business management

Source: Author's elaboration

3.6 Keyword analysis

TABLE NO. 9: Top 10 keywords

Words	Occurrences
Entrepreneur	20
Education	17
Student	17
Entrepreneurial Education	9
Students	9
Perception	8
Sustainability	7
Business	6
Entrepreneurial Intention	6
Entrepreneurship Education	6

Source: Author's elaboration

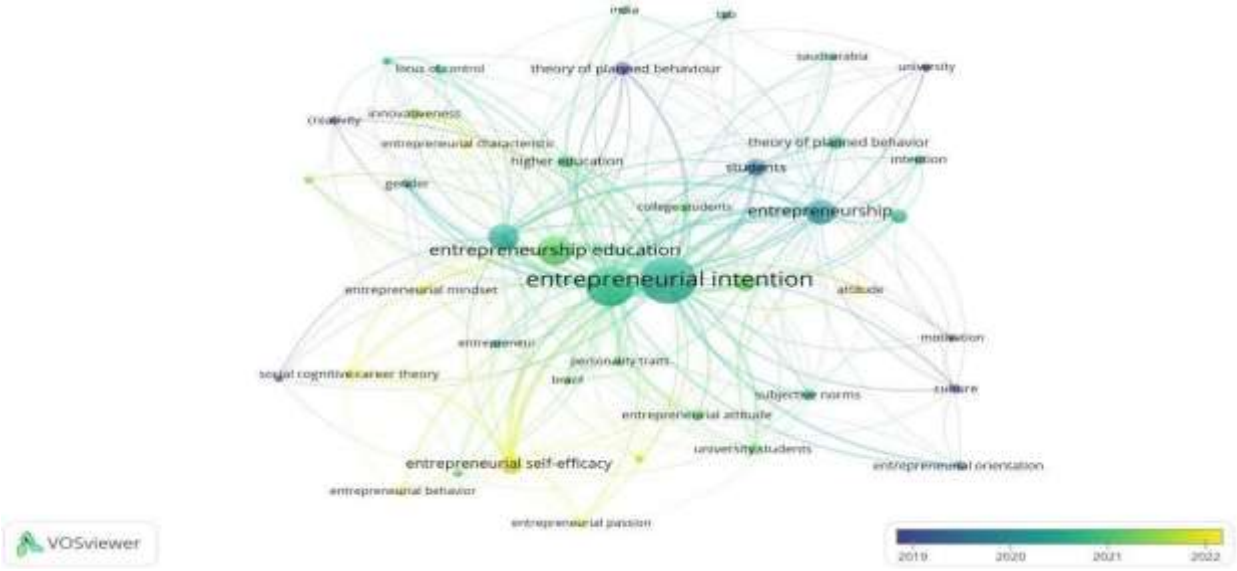
To determine the intellectual framework VOSviewer is used to analyze keywords in research on the connection between entrepreneurial education and intentions. According to (van Eck and Waltman 2011) VOSviewer's analysis is done in four steps: phrase identification, significant phrase selection using proprietary algorithms, creating maps and clusters based on identified authors and keywords, and visualizing the results. A comparison of this linkage in different countries was provided by most publications using panel data techniques, as shown by Table 9, which displays the keywords that were used in the scientific production on this theme.

3.7

3.8 Keyword timeline view

Figure 3 depicts the Scopus database's keyword analysis, which answers the seventh research question. Studies on entrepreneurial intentions, entrepreneurship, intentions, subjective norms, gender, locus of control, need for achievement, Saudi Arabia, and entrepreneur were completed recently 2020–2021, as the figure shows. The majority of research on theory of planned behavior, university, creativity, entrepreneurial attitude, culture, and motivation was conducted in 2019 – 2020. Researchers look into the following topics in 2021–2022, potentially areas of future research: entrepreneurial behavior and characteristics, innovations, entrepreneurial self-efficacy, entrepreneurial self-passion, college students, India, Brazil, attitude, and social cognitive career theory. This study is particularly focused on this association because there aren't many studies about it in the Indian context.

Figure 3: Evolution of keywords over time

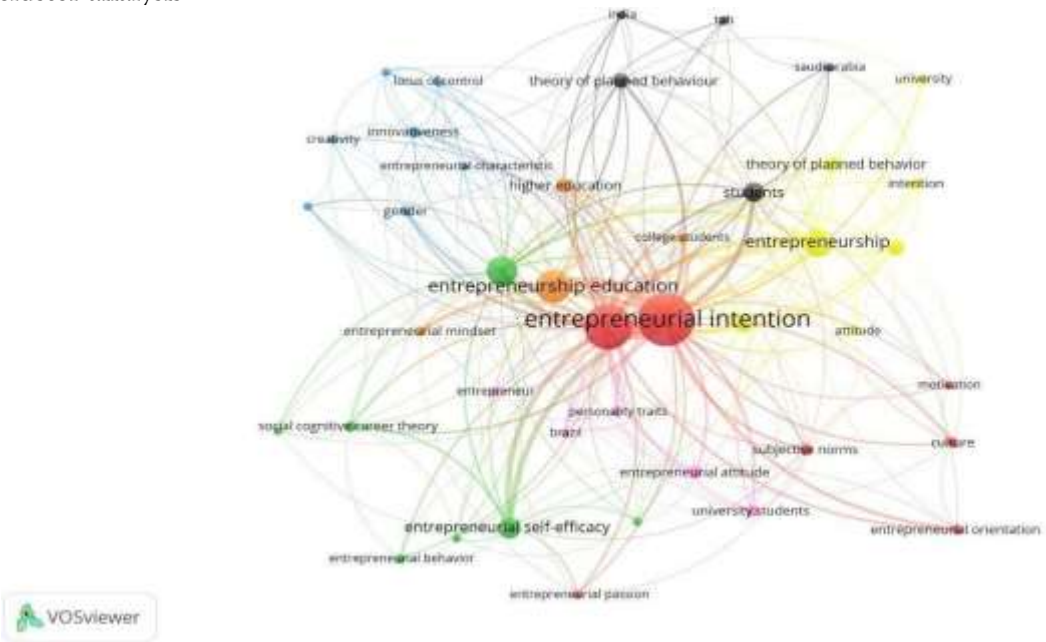


Source: Author's analysis using VOS viewer

4. Current dynamics: Cluster analysis

To determine the most popular themes among scholars related to entrepreneurial education and entrepreneurial intentions, cluster analysis is used. With Vosviewer, four clusters in total are created.

Figure 4: cluster analysis



Sources: Author's elaboration

Cluster 1, which has seven keywords, is shown in Figure 4. It is visible in red. The keyword "entrepreneurial education" has links to other keywords in this cluster. Other keywords that are frequently occurring in this cluster include "motivation," "culture," "subjective norms," "entrepreneurial intentions," "entrepreneurial orientation," and "entrepreneurial passion." Entrepreneurial intentions are shaped by factors such as entrepreneurial education, which enhances knowledge and skills; entrepreneurial passion, which drives persistent pursuit; and entrepreneurial orientation, fostering innovative, proactive, and risk-taking behaviors. Subjective norms and cultural context influence motivation, shaping perceptions and support for entrepreneurship, crucial for aspiring entrepreneurs.

Cluster 2, comprising seven keywords, is displayed in Figure 4. In green, it is observable. This cluster's other keywords are linked to the term "entrepreneurial intentions." Additionally, "Entrepreneurial attitude," "behavior," "self-efficacy," "subjective norms," "social cognitive career theory," and "Vietnam" are among the other keywords that appear frequently in this cluster. Entrepreneurial intentions are influenced by entrepreneurial attitudes, shaping positive perceptions, and entrepreneurial behavior, driving actions. Entrepreneurial self-efficacy boosts confidence in abilities, while subjective norms reflect social pressures. Social Cognitive Career Theory integrates these factors, emphasizing the interplay of personal, behavioral, and environmental influences on career choices in entrepreneurship.

Cluster 3, This, comprising seven keywords, is displayed in Figure 4. You can see it in blue. In this cluster, the terms "gender", "locus of control", "creativity", "innovativeness", "need for achievement" "entrepreneurial motivation" and "entrepreneurial characteristics" appear frequently. Gender impacts entrepreneurial motivation and characteristics, intersecting with locus of control, innovation, and the need for success. Innovativeness drives unique solutions, while a strong drive for success and a sense of control enhances persistence. These factors collectively shape entrepreneurial characteristics, fostering the motivation necessary for successful ventures. Innovativeness drives unique solutions, while a strong drive for success and a sense of control enhances persistence. These factors collectively shape entrepreneurial characteristics, fostering the motivation necessary for successful ventures.

Cluster 4, It appears in Figure 4 and contains seven keywords. Yellow makes it visible. In this cluster, the terms "attitude," "education," "self-efficacy," "intentions," "theory of planned behavior," "entrepreneurship," and "university" are frequently used. Attitude, education, and self- efficacy significantly influence entrepreneurial intentions. The Theory of Planned Behavior links these factors, anticipating venture capitalist moves. University settings play a crucial role by providing education and fostering self-efficacy, shaping positive attitudes towards entrepreneurship and enhancing students' entrepreneurial intentions.

Cluster 5, is displayed in Figure 4 and contains five keywords. It's discernible in pink. In this cluster, the terms "personality traits," "entrepreneurial attitude," "entrepreneur," "university students," and "Brazil" appear frequently. Personality traits and entrepreneurial attitude critically influence the success of entrepreneurs. For university students in Brazil, these traits can significantly impact their entrepreneurial aspirations and potential. Understanding these factors in the Brazilian context helps tailor educational programs to foster effective entrepreneurial skills and attitudes among emerging entrepreneurs.

Cluster 6, has five keywords and is shown in Figure 4. The display in black. Keywords that appear frequently in this cluster include "theory of planned behavior," "Saudi Arabia," "students," "India," and "TPB". The Theory of Planned Behavior (TPB) explains how attitudes, perceived behavioral control, and subjective norms influence students' intentions and behavior. In Saudi Arabia and India, TPB provides insights into factors shaping students' entrepreneurial intentions, highlighting cultural and contextual differences in entrepreneurial behavior and decision- making processes across these regions.

Cluster 7, includes four keywords, as illustrated in Figure 4. orange-colored display. "College students, "higher education," "entrepreneurship education," and "entrepreneurial mindset." College students' entrepreneurial mindset is significantly influenced by higher education and entrepreneurship education. These educational experiences foster critical skills and attitudes, shaping students' entrepreneurial intentions and capabilities. By integrating practical and theoretical components, higher education institutions can effectively cultivate an entrepreneurial mindset essential for future ventures and innovation.

5. CONCLUSION AND DISCUSSION

Education in entrepreneurship Governments, lawmakers, and entrepreneurship scholars have all shown interest in entrepreneurial education during the last thirty years. The way it encourages economic growth and development through entrepreneurial education is one feature that draws interest. The fundamental mechanisms underlying entrepreneurial education and intentions
remain unclear. A deeper comprehension of the part that entrepreneurial education plays in the formation of entrepreneurial intentions is made possible by this study. This bibliometric analysis demonstrates that entrepreneurial education is a complex field of study that takes into account cultural contexts, gender considerations, behavioral intentions, and educational practices. The study also emphasizes how this field is multidisciplinary and globally distributed, as evidenced
by the active contributions of countries in the Americas, Europe, and Asia. High-impact journals, successful institutions, and eminent scholars continue to influence the body of knowledge, even though keyword

clustering emphasizes the significance of motivation, passion, and social environments in research on entrepreneurial intention. Important determinants of entrepreneurial intentions include attitudes, self-efficacy, motivation, and social norms. The focus of studies conducted by renowned authors and prestigious journals further emphasizes the breadth and
depth of scholarly research in this field. Overall, the study shows that entrepreneurial education is a strategic tool for inclusive economic development, in addition to encouraging entrepreneurial aspirations.
This study sheds light on the intricate connection between the development of entrepreneurial intentions and entrepreneurial education. The field is thriving and growing, as evidenced by the bibliometric analysis of 333 scholarly documents, international collaborations, and a variety of thematic foci. It has been demonstrated that self-efficacy, cultural norms, and educational design all significantly influence entrepreneurial behavior. The field is academically mature and globally relevant, as evidenced by the findings, which also show high citation rates, diverse institutional participation, and strong international collaboration. The noteworthy contributions from nations like China, India, Malaysia, and Indonesia show how emerging economies are actively influencing the conversation about the dynamics of entrepreneurship. The results also show that entrepreneurial education is becoming more widely acknowledged as a catalyst for social change and economic empowerment.

6. Practical implications and Future directions

The study's findings are very helpful to academic institutions, educators, and policymakers who want to support entrepreneurial ecosystems. Research on the investment in context-sensitive entrepreneurial education programs emphasizes the need to develop inclusive, practical, and culturally sensitive entrepreneurship curricula that foster significant psychological drivers like confidence, resilience, and creativity. Using high-impact research insights, encouraging multi- country academic partnerships, and sharing best practices across regions can significantly
improve the quality and accessibility of entrepreneurship education globally. These steps can also contribute to the development of evidence-based, responsive policies in the field of entrepreneurship that support initiatives for gender equity in entrepreneurial training.
The causal mechanisms that connect entrepreneurial education to entrepreneurial behavior should be the focus of future research, with a focus on the mediating effects of gender, institutional contexts, and cultural norms. Deeper understanding of the ways that regional educational systems and socioeconomic circumstances influence entrepreneurial intentions may be possible through comparative cross-country analyses. Furthermore, to determine their true impact on the establishment and sustainability of businesses, It is critical for assessing the long- term impact of entrepreneurial education programs, especially within academic settings. With a focus on underrepresented groups like women and minorities, research should look at how entrepreneurial education programs affect a variety of demographic groups and educational
levels over the long run. Comparative cross-national research may help us better understand how institutional, cultural, and economic factors affect the effectiveness of entrepreneurship
education. Additionally, mixed-method approaches that incorporate bibliometrics and empirical field research may offer a deeper comprehension of the shortcomings and real-world applications of current theoretical models.

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