PROSPERITAS

18 57 BUDAPEST UNIVERSITY OF ECONOMICS AND BUSINESS
BUEB

Research Paper

Mapping Research on Entrepreneurial Intentions and TPB Among University Students: A Bibliometric Study Using RStudio

Bewar Haji

Budapest University of Economics and Business, Doctoral School of Entrepreneurship and Business, Budapest, Hungary

Duhok Polytechnic University, Technical College of Administration, Department of Business Administration Techniques, Duhok, Kurdistan Region, Iraq

Correspondence: haji.bewarsulaiman.70@unibge.hu; bewar.sulaiman@dpu.edu.krd

Abstract: Mapping 282 publications from 2020 to March 2025, this study presents a comprehensive bibliometric analysis of global literature related to the Theory of Planned Behavior (TPB) in the context of university students' entrepreneurial intents. Through RStudio's Biblioshiny, the analysis encompasses performance and intellectual evaluations, such as keyword co-occurrence, thematic mapping, thematic evolution, factorial analysis, and a three-field plot. The findings suggest a growing academic focus on entrepreneurial intentions, highlighted by a surge in publications during 2024. A regional examination underscores significant contributions from Asia and Europe, with India and Spain particularly noted for their leading productivity and citation impact. Thematic evolution reveals a transition from classic TPB constructs towards new areas like digital entrepreneurship, sustainability, and psychological factors, including self-efficacy and a proactive personality. Recent studies increasingly align TPB with contextual, educational, and psychological dimensions supporting its theoretical growth. The findings confirm TPB's ongoing theoretical significance while highlighting its expanding range in current entrepreneurship studies. This study enhances the understanding of the field's intellectual progression and provides insights for educators, researchers, and policymakers dedicated to enhancing entrepreneurship education and students' entrepreneurial intentions.

Keywords: entrepreneurial intentions, Theory of Planned Behaviour, university students, bibliometric analysis, science mapping

Citation:
Haji, B. (in press). Mapping Research on Entrepreneurial Intentions and TPB Among University Students: A Bibliometric Study Using RStudio. *Prosperitas*. Budapest University of Economics and Business. https://doi.org/10.31570/prosp_2025_0148

History:

Received:	31 Mar 2025
Revised:	14 May 2025
Accepted:	1 Jul 2025
Published:	28 Aug 2025

1. Introduction

Entrepreneurial activities significantly contribute to economic dynamism, innovation, and job creation by acting as a catalyst for sustainable development and societal progress. Consequently, supporting entrepreneurial endeavours is a primary goal for governments, educational institutions, and policymakers worldwide. Thus, it is crucial to understand entrepreneurial intentions, especially among university students, as they are the future entrepreneurs whose actions will impact economic and societal progression (Nguyen et al., 2024; Paiva et al., 2024). Entrepreneurial intention refers to a student's motivation or commitment to pursue entrepreneurial activities, often influenced by education and personal perceptions (Rajpal & Singh, 2024). University students are at a pivotal stage, where education can shape their attitudes, motivations, and perceived abilities regarding entrepreneurship. Therefore, examining the factors and trends influencing students' entrepreneurial intentions offers valuable insights for educators and policymakers committed to nurturing entrepreneurial ecosystems in higher education.

The Theory of Planned Behaviour (TPB), first introduced by Ajzen (1991), is a prominent model in entrepreneurship studies. It argues that entrepreneurial intentions are shaped by three main factors: attitude toward the behaviour, subjective norm, and perceived behavioural control (Ajzen, 1991). Specifically, personal attractions reflect how positively or negatively one

views entrepreneurship; subjective norms deal with social influences from peers and family regarding entrepreneurial actions; while perceived behavioural control concerns one's confidence in managing entrepreneurial tasks effectively. Due to its reliability and effectiveness in forecasting entrepreneurial intentions and behaviours, TPB serves as a crucial framework in entrepreneurship education and intention-based studies (Sijabat, 2024). Despite its widespread use and recognition, there is still a lack of comprehensive bibliometric reviews focusing on literature about entrepreneurial intentions among university students. As a result, scholarly knowledge of this niche's research patterns, intellectual frameworks, and novel trends remains limited (Gangadhara & Kumar, 2024). Bibliometric analysis presents a robust approach to systematically evaluate academic resources, map intellectual territories, and identify emerging research trends using quantitative and visual methods. These analyses are critical for revealing academic discourse scope, identifying knowledge gaps, and proposing directions for future research.

Although TPB remains a staple in research on entrepreneurial intentions, existing bibliometric analyses have not specifically explored its application to university students. For instance, Naskar and Lindahl (2025) reviewed cross-disciplinary uses of TPB, and Nam and Thi (2024) investigated regional patterns in student entrepreneurship. In addition, Ismail and Hussain (2024) studied TPB's relation to digital entrepreneurial intentions, while Büyükkidik (2022) offered methodological insights into bibliometric analysis using Biblioshiny. Nonetheless, no study has systematically reviewed research on university students' entrepreneurial intentions within the fast-evolving period from 2020 to 2025. This study addresses this gap by concentrating on this five-year span, marked by a significant rise in scholarly work on student entrepreneurship. This period also captures significant shifts in entrepreneurship education, such as the integration of digital tools, evolving teaching methods, and an increased focus on entrepreneurial skills. These factors make the 2020-2025 period particularly significant for identifying new themes, theoretical progressions, and methodological innovations in entrepreneurship studies.

Building on the previous rationale, this study seeks to fill the research gap by conducting a bibliometric analysis of works dating from 2020 to 2025 and examines university students' entrepreneurial intentions through the TPB lens. Utilizing science mapping techniques with Biblioshiny in RStudio, the study delves into the field's intellectual framework and thematic development. It highlights key theoretical insights, methodological patterns, and emerging research directions, thus offering valuable insights for scholars and policymakers in entrepreneurship education. The structure of the study is organized as follows: Section Two reviews previous bibliometric studies on TPB and entrepreneurial intentions. Section Three details the methodology, including data collection, analysis approaches, and bibliometric tools. Section Four covers results and discussion, focusing on performance analysis, theme development, and alignment with prior literature. Lastly, Section Five concludes by summarizing key findings, outlining practical and theoretical implications, and suggesting future research directions.

2. Literature review

Over the past decade, the literature on entrepreneurial intentions has advanced notably, with the Theory of Planned Behaviour (TPB) taking a central role as an explanatory model. As academic interest intensifies in examining how personal, educational, and contextual elements shape entrepreneurial intentions, particularly among university students, a concurrent demand emerges to evaluate the structure and evolution of this research area systematically. This section provides a critical overview of existing bibliometric studies and theoretical insights on TPB and entrepreneurial intentions. It pinpoints significant trends, conceptual advancements, and methodological strategies, while also identifying the current gaps in the literature. This approach forms the basis for the current study's bibliometric

analysis, which aims to define the intellectual landscape of TPB-based entrepreneurship research within higher education from 2020 to 2025.

2.1 Bibliometric Landscape and Gap Analysis

Recent bibliometric and systematic reviews have enhanced our understanding of entrepreneurial intention through the TPB lens, unveiling shifts in research trends and concepts. Naskar and Lindahl (2025) conducted an extensive bibliometric analysis of TPB literature, documenting four decades of progress, showcasing its cross-disciplinary relevance and varied usage in behavioural sciences. Ismail and Hussain (2024) concentrated on digital entrepreneurial intention, merging TPB with environmental and youth behaviour factors to explore new digital landscapes. Furthermore, Nam and Thi (2024) examined student entrepreneurship, highlighting Asia, especially China, as a central hub for research output, and connected entrepreneurial intention to the themes of innovation and education. These studies collectively reveal a heightened scholastic focus on entrepreneurial intentions' contextual, technological, and regional aspects, confirming the TPB's persistent importance and flexibility in entrepreneurship research.

To systematically assess how TPB has been applied in entrepreneurial contexts, particularly among students, bibliometric tools offer valuable insights into scholarly trends and thematic development. As Guleria and Kaur (2021) noted, bibliometric approaches, especially science mapping, allow scholars to monitor the development of ideas, identify key authors and publications, and uncover thematic patterns across fields. Büyükkidik (2022) highlights the advantages of Biblioshiny, a web interface based on RStudio, which facilitates bibliometric analysis without requiring advanced coding skills. Furthermore, Guerrero-Alcedo et al. (2022) and Huang et al. (2024) emphasize how such tools generate detailed visualizations, enabling researchers to examine citation networks, keyword interrelations, and thematic clusters in depth. As depicted in Figure 1, the Bibliometrix science mapping workflow outlines the analytical process used in this study.

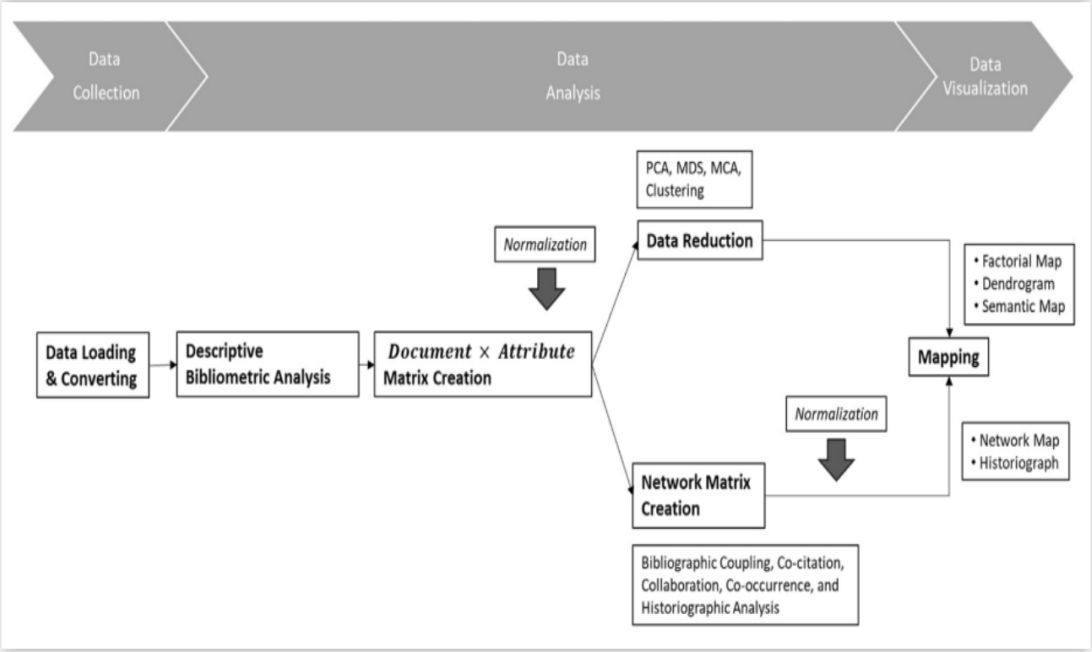


Figure 1. Bibliometrix science mapping workflow. *Source: Aria & Cuccurullo (2017).*

Although there have been methodological advances and an expanding body of work related to TPB and entrepreneurial intentions, a substantial gap remains in the bibliometric analysis of this domain. Systematic studies focusing on TPB-related research in higher education contexts are limited. The research output in the dataset used for this study (2020-2025) predominantly comprises research articles (278 documents, accounting for 98.6%), with only a small number of review papers (4 documents, accounting for 1.4%). This

distribution highlights the dominance of empirical studies, and underscores a significant lack of systematic or bibliometric reviews in the field.

Even though the volume of literature is growing, significant conceptual and methodological gaps persist. A thorough review of existing research indicates that:

1. Most studies apply TPB in broad disciplinary or demographic contexts, with limited focus on entrepreneurship education;
2. Research tends to target general youth, rural entrepreneurs, or digital natives, rather than university students;
3. Few studies combine TPB constructs with advanced bibliometric tools, particularly science mapping, in higher education contexts.

Thus far, no bibliometric assessment has comprehensively examined the intersection of three key elements: the application of TPB, a specific focus on university students, and science mapping tools such as Biblioshiny. This research addresses this gap by conducting a focused bibliometric literature review from 2020 to 2025. By integrating TPB as the theoretical foundation and employing science mapping methods in RStudio, the study maps the intellectual structure and thematic evolution of research on student entrepreneurial intentions and thus offers relevant insights into the evolving domain of entrepreneurship education.

2.2 Theory of Planned Behavior

The Theory of Planned Behaviour, introduced by Ajzen (1991), has served as a foundational model for understanding entrepreneurial intentions, particularly in educational contexts (see later, Figure 3). Over the past decades, TPB has been widely applied across disciplines, as it offers a robust framework for identifying the psychological factors influencing individuals' decisions to pursue entrepreneurship. According to TPB, behaviour is shaped by three primary components: attitude toward the behaviour, subjective norms, and perceived behavioural control. In the context of entrepreneurship, these elements interact to shape individuals' intentions and potential actions. A key feature of TPB is its emphasis on personal cognitive factors, such as attitude and perceived control. For instance, Rajpal and Singh (2024) found that a favourable attitude toward entrepreneurship is strongly associated with higher entrepreneurial intention.

Recent bibliometric and review studies, such as Thanh Nguyen et al. (2025), advocate for an extended TPB framework incorporating personality traits and entrepreneurship education and offer a more comprehensive understanding of how entrepreneurial intentions form among university students. Similarly, Fubah et al. (2025) identified TPB as the dominant theoretical framework in quantitative research on youth entrepreneurship. These studies underscore the central role of TPB constructs, particularly attitudes, norms, and perceived behavioural control, in influencing entrepreneurial intentions among young people. Further supporting this, Gallegos et al. (2025) examined female university students and found that self-efficacy, a component of perceived behavioural control, strongly predicts entrepreneurial intention. Gao et al. (2022) affirmed TPB's widespread use in studies of college student entrepreneurship, highlighting TPB's value in capturing the influence of educational variables. Donaldson et al. (2025) extended this by emphasizing the predictive power of entrepreneurial self-efficacy and digital competencies, both closely linked to perceived behavioural control, in shaping students' entrepreneurial goals.

Contextual and institutional influences have also been explored. Nam and Thi (2024) argue that educational environments and individual personality traits significantly affect entrepreneurial intention, reinforcing that external variables can shape TPB pathways. Their findings align with broader literature, including gender-focused research by Haus et al. (2013), and highlight how educational and societal structures can influence entrepreneurial intention formation.

However, despite its strengths, TPB faces criticism, particularly regarding the intention-behaviour gap. While TPB effectively predicts intention, it does not always explain why high intention fails to translate into entrepreneurial action. Haus et al. (2013) highlight the presence of unforeseen barriers and internal constraints that hinder this transition. This limitation calls for further research to bridge the gap between intention and behaviour, enriching the TPB framework and improving its explanatory power in real-world entrepreneurial outcomes.

2.3 Entrepreneurial Intentions

Research into entrepreneurial intentions, a pivotal domain in entrepreneurship studies, examines the motivations and factors prompting individuals to pursue entrepreneurial activities. Entrepreneurial intentions reflect an individual's drive and commitment to venture creation. As a critical precursor to actual entrepreneurial behaviour, understanding the determinants of these intentions is essential for fostering entrepreneurial engagement. A growing body of research has explored various dimensions of entrepreneurial intentions, often employing the TPB as a foundational framework.

Building on this foundation, numerous studies have confirmed that the core components of TPB, entrepreneurial attitude, subjective norms, and perceived behavioural control, are strong predictors of entrepreneurial intentions among students. For example, Gao et al. (2022) identified entrepreneurship education as a critical predictor of entrepreneurial intentions in college students, and such intentions are influenced by individual characteristics and socio-cultural conditions. Similarly, Fubah et al. (2025) emphasize the importance of TPB in evaluating youth entrepreneurship and highlight that while intention levels may vary across contexts, they consistently align with TPB's theoretical assumptions. These findings collectively underscore the robustness of TPB in linking individual perceptions to entrepreneurial intent. Supporting this perspective, Liu et al. (2025) demonstrated that entrepreneurship-related competencies, acquired through education and personal development, enhance both entrepreneurial intention and sustainable outcomes, particularly among university students in China.

Beyond theoretical models, specific personal traits have been consistently associated with the desire to pursue entrepreneurial endeavours. Among the most frequently cited such traits are self-efficacy and entrepreneurial passion, both recognized as significant predictors of entrepreneurial intent (Gallegos et al., 2025; Maheshwari et al., 2022). Gallegos et al. (2025) show that self-efficacy and the ability to overcome barriers significantly enhance entrepreneurial intentions among female university students. Likewise, Maheshwari et al. (2022) highlight how attributes such as risk tolerance and innovation orientation substantially influence the entrepreneurial intentions of graduate students. These internal characteristics form a complex matrix of influences shaping entrepreneurial aspirations when considered alongside external factors, such as educational background and socio-economic context.

Moreover, several studies emphasize the critical role of entrepreneurship education in cultivating entrepreneurial intentions. Gao et al. (2022) and Nam and Thi (2024) assert that targeted educational programs enhance entrepreneurial knowledge and foster an innovative mindset and practical readiness for venture creation. Nam and Thi (2024) further argue that experiential components, such as real-world entrepreneurial projects and simulations, significantly contribute to students' entrepreneurial inclinations. Rustiana (2025) supports integrating entrepreneurship education into mainstream curricula and emphasizes the need for hands-on learning to prepare students for entrepreneurial careers. Together, these studies underscore the importance of practice-oriented education in reinforcing entrepreneurial motivation.

While numerous factors and theoretical frameworks positively influence entrepreneurial intentions, the literature also highlights a persistent gap between intention and action, which warrants further inquiry. Haus et al. (2013) argue that even individuals with strong entrepreneurial intentions often encounter barriers that prevent them from translating intention into actual business activity. These barriers may be internal (e.g., lack of confidence or risk aversion) or external (e.g., financial constraints, policy limitations), and they suggest that future research should focus on identifying and mitigating such obstacles. This emphasis is significant given the tendency in existing literature to concentrate predominantly on intention formation, potentially overlooking the challenges individuals face during execution.

Additionally, prior studies underscore the significant role of gender in shaping entrepreneurial intentions. Gallegos et al. (2025) reveal that gender differences influence the levels of entrepreneurial intention and the factors that drive them. Their meta-analysis indicates that while self-efficacy and social support are essential for both male and female students, societal expectations and gendered norms present unique barriers for women. These findings suggest the need for gender-sensitive strategies within educational environments to support female students' entrepreneurial ambitions more effectively.

3. Methodology

3.1 Bibliometric Analysis

Bibliometric analysis, classified as a quantitative research method, is employed to discern the volume and growth trends in this emerging literature. This technique enables a structured, transparent, and reproducible review process by evaluating secondary data from digital databases with a quantitative and objective stance, thus enhancing the review's credibility and quality (Ding & Yang, 2022). Furthermore, bibliometric analysis permits a retrospective evaluation of published works, assessing scholarly contributions in the specified domain in question (Guleria & Kaur, 2021).

The use of bibliometric analysis, supported by numerous key advantages inherent to this approach, is facilitated by RStudio's Biblioshiny. First, the bibliometrix package in RStudio is noted for its extensive capabilities in conducting thorough bibliometric studies, as demonstrated by Aria and Cuccurullo, who discuss RStudio's proficiency in scientific mapping and data visualization (Aria & Cuccurullo, 2017). Moreover, Biblioshiny, the user-friendly interface for bibliometrix, enables researchers to engage with bibliometric data effortlessly without requiring extensive programming knowledge, thereby making complex analyses more accessible (Büyükkidik, 2022). In addition, recent research has highlighted the effectiveness of this method in analyzing large datasets, as seen in the study of 1465 documents on student intentions regarding entrepreneurship development conducted by Rani and Kumar (2024), who demonstrated bibliometrix's scalability and ability to provide detailed insights into trends over time. This is further supported by successful implementations in various domains, demonstrating the flexibility of the bibliometrix framework in synthesizing extensive bibliographic data (Büyükkidik, 2022). Considering these points, employing bibliometric analysis with RStudio's Biblioshiny guarantees a well-organized, efficient, and insightful approach to conducting systematic literature reviews and scientific mapping.

3.2 Data Source

The article analysed documents from Elsevier's Scopus database, which is known for its extensive collection of indexed journals and its reputation as a credible alternative to the Web of Science (Kumari & Jaiswal, 2023). An exploration of worldwide literature on the Theory of Planned Behaviour and entrepreneurial intentions among university students over the past five years – i.e. from 2020 to March 2025 – was conducted using a detailed search string with key terms to find all pertinent papers. The query, which involves "theory of planned behaviour" OR "TPB" AND "entrepreneurial intention*" AND "university students" OR "undergraduate students" OR "students", was applied to titles, abstracts, and keywords to ensure relevance to the study's topic. Consequently, a total of 755 publications were identified. Starting with a time frame from 2020 to March 2025 and focusing on categories such as Business, Management, Accounting, Economics, Econometrics, and Finance, 308 documents were initially obtained. After removing three duplicated documents, the database was refined to include only articles or reviews written in English, ultimately resulting in a distinct database containing 282 publications. This database was exported as a BibTeX file, including variables such as citation information, bibliographical details, abstracts, funding information, and other relevant data. The summary of the data source and selection is presented in Table 1.

Table 1. Summary of data source and selection. *Source: Author's own*

Data Source	Scopus
Search Period	January 2020 to 12 March 2025
Search Keywords	"Theory of Planned Behavior" OR "TPB" AND "entrepreneurial intention*" AND "University Students" OR "Undergraduate Students" OR "Students"
Subject Categories	"Business" OR "Management" OR "Accounting" OR "Economics" OR "Econometrics" OR "Finance"
Document Types	"Articles" OR "Reviews"
Language	"English"
Sample Size	282

Regarding the inclusion and exclusion criteria, the study adhered to the steps in the PRISMA checklist. Moher et al. (2009) stated that the PRISMA Statement aims to assist authors in enhancing the reporting of systematic reviews and meta-analyses. They suggested PRISMA might be a foundation for reporting systematic reviews across various research types, particularly in evaluating interventions. Additionally, PRISMA could be beneficial for critically evaluating published systematic reviews. The PRISMA flow diagram used in this article (Figure 2) was adapted from Kumari and Jaiswal (2023).

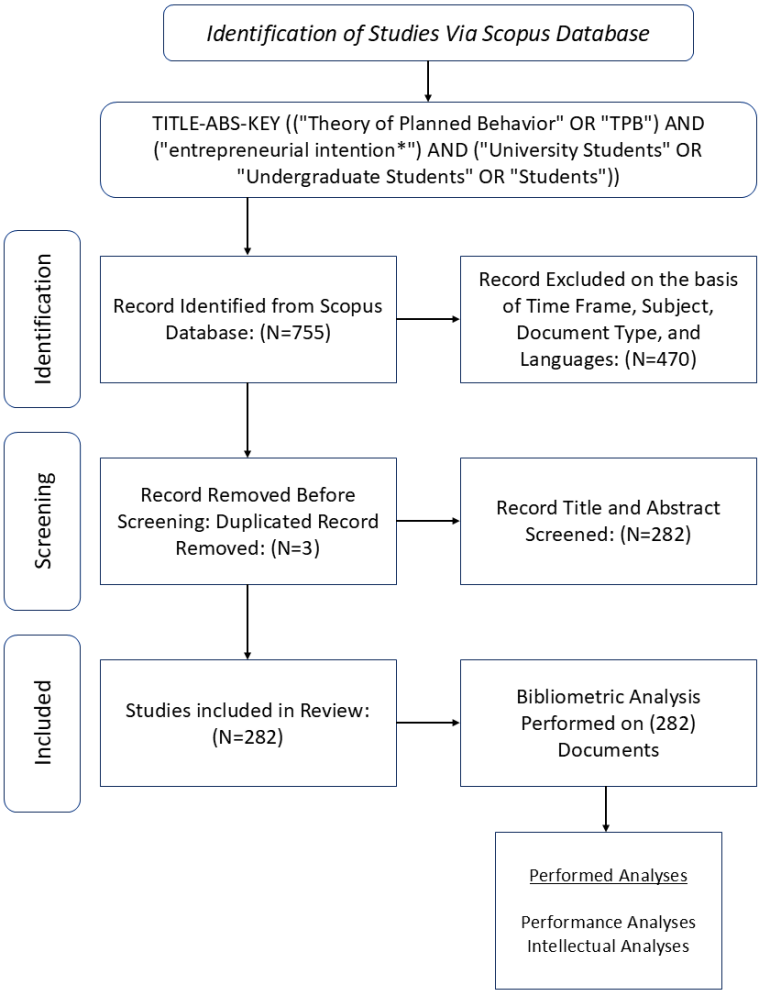


Figure 2. PRISMA flow diagram steps in the bibliometric research.
Source: Adapted from Kumari and Jaiswal (2023)

3.3 Data analysis

According to Büyükkidik (2022), the process of conducting bibliometric research mainly involves seven key steps (Figure 3): (i) defining the research problem, objective, or aim; (ii) reviewing the literature according to the study's purpose; (iii) selecting the suitable database, terms, and determining inclusion and exclusion criteria; (iv) choosing a bibliometric method and the software needed for data analysis; (v) collecting and organizing data in line with the research problem and chosen bibliometric method; (vi) inputting data into the software and performing analysis; and (vii) ultimately, visualizing results, compiling findings, and formulating conclusions and suggestions. Before executing the analysis, bibliometric data must be uploaded to Biblioshiny, the user-friendly interface for Bibliometrix. Suitable databases include Scopus, Web of Science, Dimensions, Lens.org, PubMed, and the Cochrane Library.

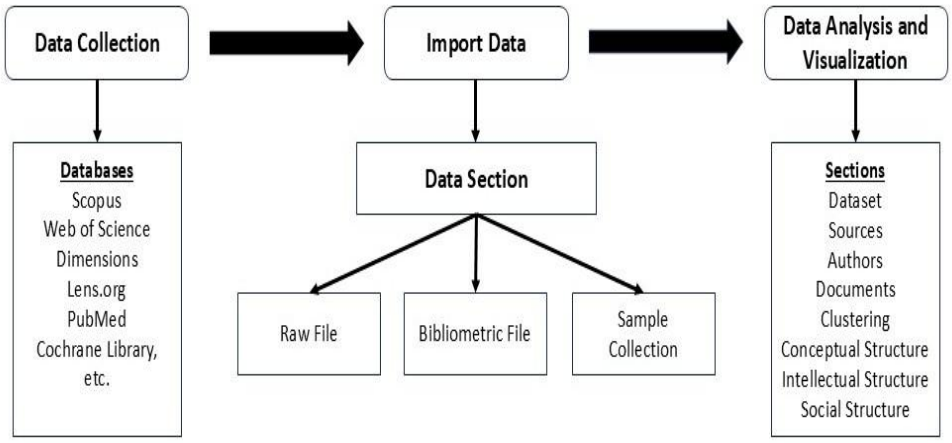


Figure 3. Bibliometric research steps using biblioshiny. *Source: Adapted from Buyukkidi (2022)*

4. Results

4.1. Performance analysis

From 2020 to March 2025, the dataset comprises 282 scholarly documents from 138 sources, reflecting students' broad academic interest in entrepreneurial intentions (Table 2). This interdisciplinary collection of journal articles and reviews illustrates the diverse approaches to studying this topic.

Table 2. Descriptive characteristics of the dataset. *Source: Author's own*

Description	Results
Main Information About Data	
Timespan	2020:2025
Sources (Journals, Books, etc.)	138
Documents	282
Annual Growth Rate %	-16.96
Document Average Age	2.5
Average citations per doc	17.58
References	0
Document Contents	
Keywords Plus (ID)	84
Author's Keywords (DE)	671
Authors	
Authors	772
Authors of single-authored docs	31
Authors Collaboration	
Single-authored docs	36
Co-Authors per doc	3.15
International co-authorships %	30.14
Document Types	
article	278
review	4

An analysis of the publication trends reveals a significant variation in output over the studied period (see Appendix A for details). After a stable initial phase, there was a marked increase, reaching a peak in 2024, when publications surged to nearly 80, representing approximately 28% of the total volume collected over the six years. This peak potentially indicates a heightened scholarly response to emerging trends or pivotal developments in the study of entrepreneurship. In contrast, the sharp decline to just 15 publications in 2025, accounting for about 5% of the total, suggests a notable decrease in research activity.

However, this apparent reduction should be interpreted with caution as data collection concluded on 12 March 2025, indicating that the production data for 2025 may not fully represent the entire year's output and could potentially increase as the year progresses. These fluctuations provide an insight into the dynamic nature of research on entrepreneurial intentions and highlight the cyclical trends in academic productivity.

The analysis of the most globally cited documents shows significant differences in citation impact across various publications (Table 3). Vamvaka et al. (2020) stand out as having the most influential work, boasting 211 total citations and 35.17 citations per year on average, highlighting its persistent academic influence in entrepreneurial intention research. Gieure et al. (2020) come in second with 180 citations, with Barba-Sánchez et al. (2022) closely behind, gathering 143 citations with the highest annual average (35.75), indicating strong recent engagement. Other notable works include Maheshwari and Kha (2022) with 119 citations and Anjum et al. (2020) with 108, which underscores the importance of educational and institutional factors in shaping entrepreneurial intentions. These documents collectively underscore the crucial role of TPB and its components in impactful entrepreneurship research. In the following figures and tables, the term 'total citations' is abbreviated to TC.

Table 3. Most globally cited documents. *Source: Author's own*

Authors	Article Title	Journal	TC	TC Per Year
Vamvaka et al. (2020)	Attitude toward entrepreneurship, perceived behavioral control, and entrepreneurial intention: dimensionality, structural relationships, and gender differences	Journal of Innovation and Entrepreneurship	211	35.17
Gieure et al. (2020)	The entrepreneurial process: The link between intentions and behavior	Journal of Business Research	180	30.00
Barba-Sánchez et al. (2022)	The entrepreneurial intention of university students: An environmental perspective	European Research on Management and Business Economics	143	35.75
Maheshwari and Kha (2022)	Investigating the relationship between educational support and entrepreneurial intention in Vietnam: The mediating role of entrepreneurial self-efficacy in the theory of planned behavior	The International Journal of Management Education	119	29.75
Anjum et al. (2020)	Entrepreneurial Intention: Creativity, Entrepreneurship, and University Support	Journal of Open Innovation: Technology, Market, and Complexity	108	21.60
Thelken and Jong (2020)	The impact of values and future orientation on intention formation within sustainable entrepreneurship	Journal of Cleaner Production	106	17.67
Fragoso et al. (2020)	Determinant factors of entrepreneurial intention among university students in Brazil and Portugal	Journal of Small Business & Entrepreneurship	103	17.17
Karimi, S. (2020)	The role of entrepreneurial passion in the formation of students' entrepreneurial intentions	Applied Economics	101	16.83
Al-Mamary et al. (2020)	Factors impacting entrepreneurial intentions among university students in Saudi Arabia: testing an integrated model of TPB and EO	Education + Training	95	15.83
Maheshwari et al. (2023)	Factors affecting students' entrepreneurial intentions: a systematic review (2005–2022) for future directions in theory and practice	Management Review Quarterly	89	29.67

Table 4 further reinforces this trend by depicting a temporal citation pattern. Publications from 2020 attained the highest average citation rate (46.21), whereas more recent works from 2024 and 2025 had lower averages (3.47) and (0.80), respectively,

highlighting the anticipated citation delay for newer studies. These results emphasize the enduring impact of early foundational research and indicate the increasing academic momentum of recent contributions.

Table 4. Average citation per year. *Source: Author's own*

Year	Mean TC Per Article	N	Mean TC Per Year	Citable Years
2020	46.21	38	7.70	6
2021	25.13	38	5.03	5
2022	22.52	60	5.63	4
2023	11.55	53	3.85	3
2024	3.47	78	1.74	2
2025	0.80	15	0.80	1

Examining significant authors and their publication trends underscores key contributors to academic discourse. Duong C.D. is identified as the most productive author, with nine publications, illustrating ongoing involvement with the topic over several years (see Appendix B). Sahinidis, A. G., and Tsaknis, P. A., are not far behind, each with seven publications, while Maheshwari, G. has added six works, establishing a notable research presence in the field.

The patterns of temporal production demonstrate distinct paths as shown in Appendix C. Duong's publication rate shows steady growth, reaching its zenith in 2024, signifying both activity and consistency. Maheshwari's contributions are primarily concentrated in 2022 and 2023, yet are notable for their higher citation impact, highlighted by darker and larger nodes in the timeline visualization. Authors such as Haddad, G., Lopes, J.M., and Vassiliou, E.E. also make regular scholarly contributions, significantly enriching the growing body of knowledge. The integrated analysis of productivity and citation impact indicates that a central group of researchers is shaping the field's intellectual framework. These authors are productive and influential, reinforcing the importance of TPB constructs in entrepreneurship research. These scholars' work highlights an increasing scholarly interest in entrepreneurial intention's psychological and educational aspects, serving as critical references for future empirical and theoretical advancements.

Regarding citation performance (see Appendix D), Spain is at the forefront with 511 citations, then Saudi Arabia (360), India (339), Greece (232), and Colombia (231). Though Saudi Arabia is not among the most prolific ones in terms of publication numbers, its high citation rate indicates the presence of highly impactful research. The analysis at the national level indicates significant differences in the volume of publications and the impact of citations on research on entrepreneurial intention based on TPB between 2020 and 2025 (see Appendix E). India appears as the most prolific nation, with 70 publications in 2025, and a marked increase beginning in 2023. Spain is next with a consistent output, expected to reach around 51 publications in 2025. Colombia and Portugal also show regular growth, each reaching 28 publications in 2025, while Malaysia follows closely with 26 publications in 2025. These results highlight the increasingly global nature of TPB-based entrepreneurial intention research, with contributions extending beyond traditionally dominant academic regions. The rising academic presence of countries like India, Saudi Arabia, and Colombia suggests a changing research environment with broader international participation.

The descriptive analysis of source dynamics reveals a distinct upward trend in publications concerning TPB and entrepreneurial intentions (see Appendix F). The International Journal of Management Education spearheads this growth, increasing from 1 article in 2020 to 23 in 2025, underscoring its pivotal role in shaping the discourse on entrepreneurship education. The Education and Training journal and the Cogent Business and Management journal also demonstrate notable increases, levelling off at 13 and 12 publications by 2025. Conversely, journals such as the Journal of Innovation and Entrepreneurship and the Entrepreneurial Business and Economics Review exhibit steady but slower growth. The recent emergence of Industry and Higher Education indicates a growing institutional interest in entrepreneurship. The data reflect a shift toward education-oriented journals, stressing universities' roles in promoting entrepreneurial intentions through TPB models.

Concerning the leading institutions involved in research on entrepreneurial intentions and TPB (see Appendix G), the National Economics University stands at the forefront with 15 publications, showcasing its robust academic influence in this area. It is followed by the University of West Attica, which has eight articles. King Faisal University, Memorial University of Newfoundland, and Universidad EAFIT each contributed six articles. Other prominent institutions, such as Aligarh Muslim University, RMIT University, and the University of Lleida, have each authored five publications. These findings demonstrate a diverse and expanding international research community, with notable contributions from established and emerging academic institutions.

A Three-Field Plot was constructed to offer a comprehensive perspective of the intellectual landscape surrounding TPB and entrepreneurial intentions (Figure 4). This visualization enables a concurrent examination of the interaction between key authors (AU), their prevailing research themes (DE), and the journals (SO) in which their work is published. The plot shows that prominent authors, such as Sahinidis AG, Duong CD, and Tsaknis PA often publish on recurring themes, including entrepreneurial intention, theory of planned behavior (TPB), and entrepreneurship education, as well as related topics such as entrepreneurship, higher education, and subjective norms, in prestigious journals like the International Journal of Management Education, Journal of Innovation and Entrepreneurship, Education and Training, and Cogent Business and Management. This convergence aligns with earlier findings related to top-cited documents, most relevant affiliations, and primary publication sources, reinforcing the thematic cohesion within the field. Ultimately, the Three-Field Plot highlights the structural alignment of research activity, identifying key contributors and dissemination channels that shape the scholarly dialogue.

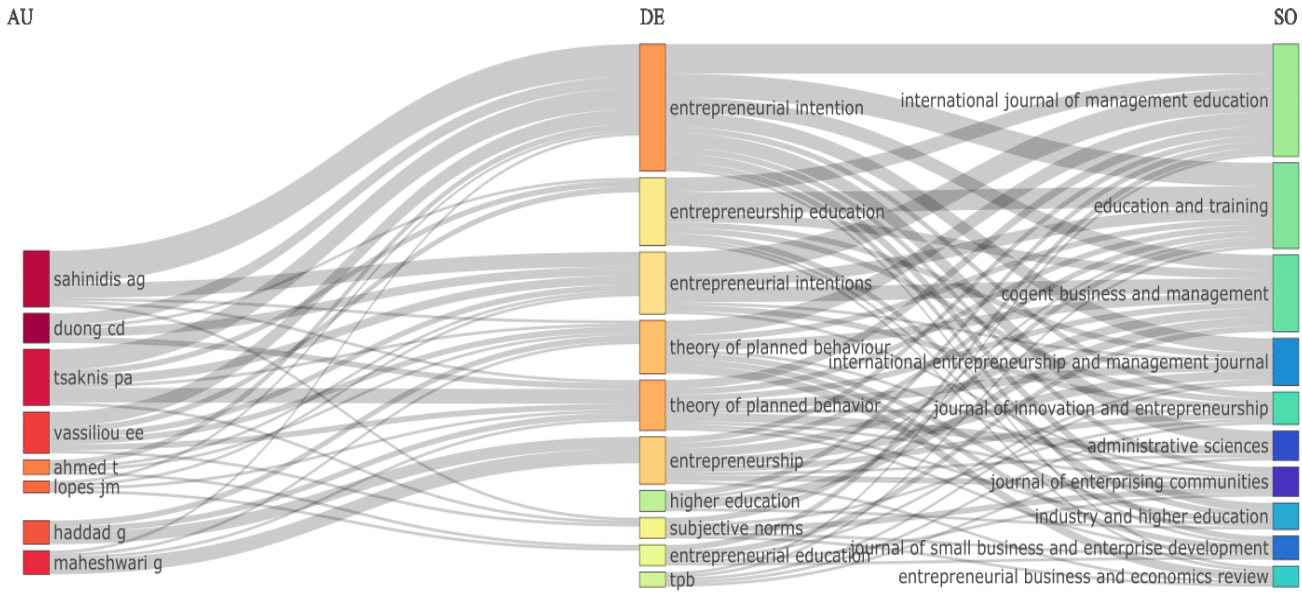


Figure 4. Three-Field plot. *Source: Author's own*

4.2. Intellectual Analysis

Using the author's keywords, the keyword co-occurrence analysis uncovers the conceptual framework of research focused on entrepreneurial intentions, which is strongly rooted in TPB. The density visualization (Figure 5) highlights entrepreneurial intention as the most central and commonly co-occurring keyword, surrounded by main TPB elements, including the theory of planned behaviour, perceived behavioural control, subjective norms, and self-efficacy. These connections highlight TPB's substantial impact on research related to students' entrepreneurial behaviour. Other frequently used terms, such as entrepreneurial education, university students, and higher education, reflect that educational settings are key

contexts for applying TPB. Keywords such as entrepreneurial motivation, personality traits, and risk-taking propensity indicate a growing interest in psychological and behavioural precursors. Meanwhile, less prominent but noteworthy keywords, such as digital entrepreneurial intentions, sustainable entrepreneurial intentions, and social entrepreneurship, suggest expanding thematic avenues, particularly about technological innovation and sustainability.

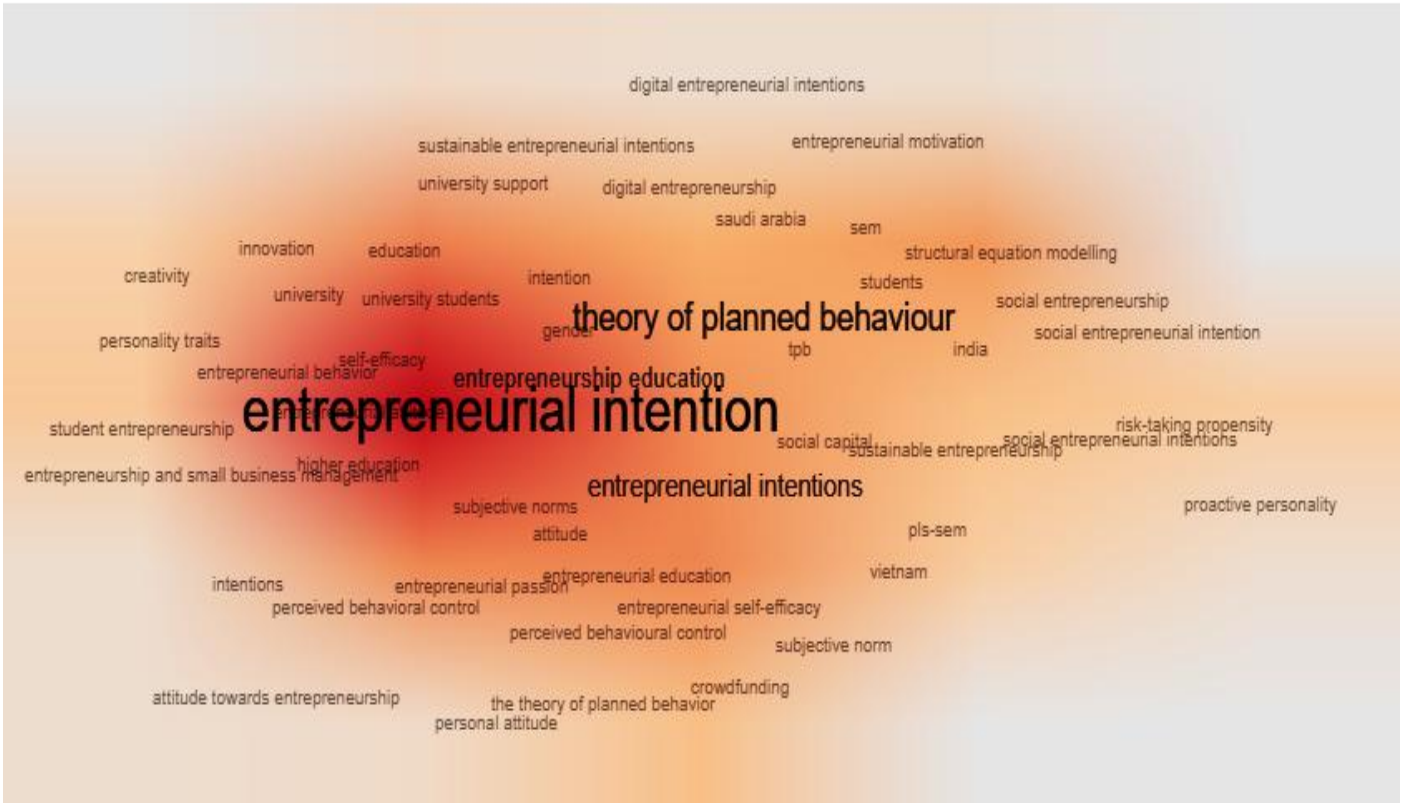


Figure 5. Keyword co-occurrence density visualization. *Source: Author's own*

On the other hand, the network map categorizes these keywords into unique thematic clusters (Figure 6). The clusters centre around entrepreneurial intention and the theory of planned behaviour, along with their core elements, indicating theoretical coherence. Another cluster links psychological attributes, such as proactive personality and risk-taking propensity, with social entrepreneurial intentions, while different groups show interest in digital entrepreneurial intentions, sustainability, and educational interventions. Keywords pertaining to specific countries, such as Vietnam, Saudi Arabia, and India, indicate a growing geographical diversity in the literature. The co-occurrence analysis highlights the field's solid theoretical foundation in TPB, while also demonstrating its growing integration with cross-disciplinary topics such as digitalization, sustainability, and culture. These trends demonstrate the solidification of core concepts and the advent of new, contextually relevant research paths in exploring entrepreneurial intentions among university students.

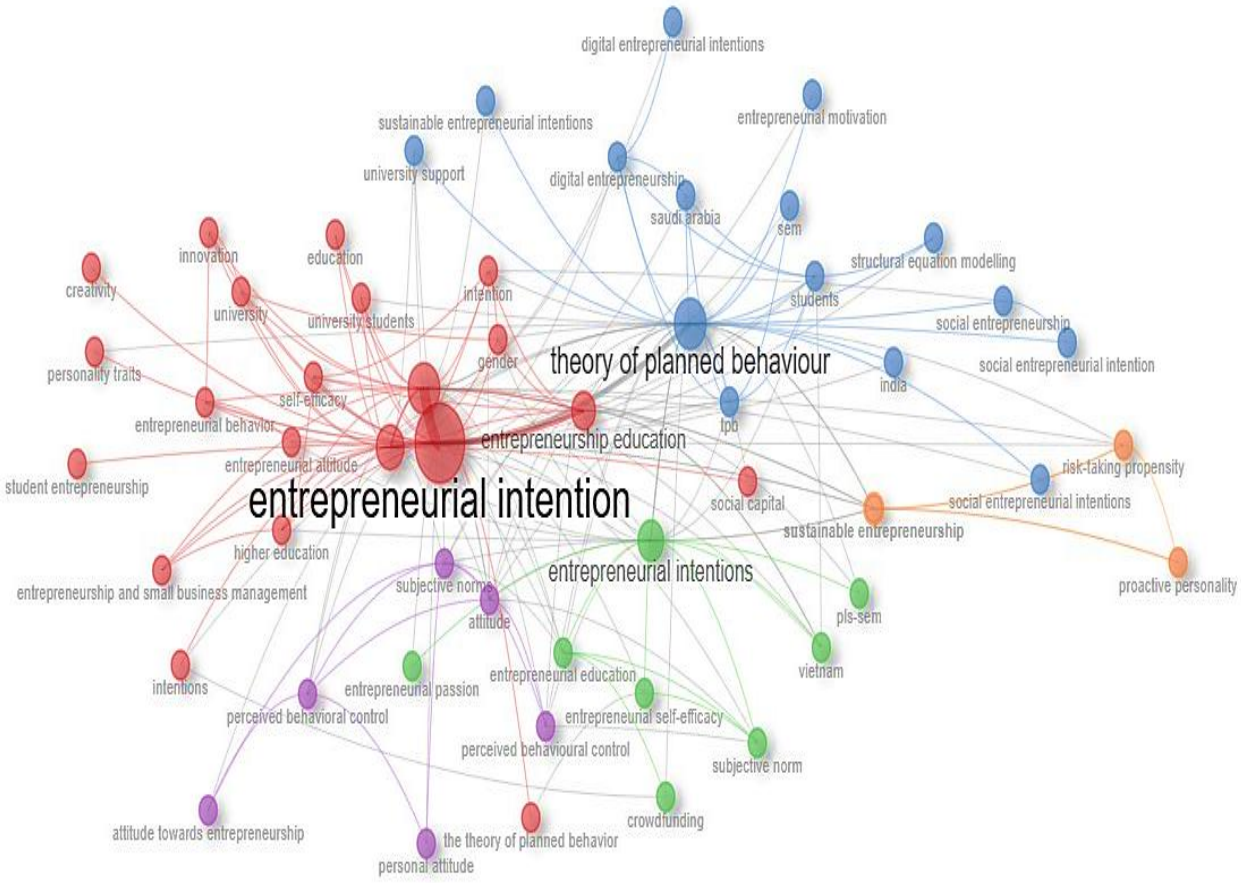


Figure 6. Network map based on author's keywords. *Source: Author's own*

To explore the strategic framework of the field, a thematic map was created utilizing Author Keywords as shown in Figure 7. The analysis employed the Louvain clustering algorithm, and focused on the top 50 keywords, a minimum cluster frequency of 5, and 4 thematic labels. Themes were charted on a two-dimensional space defined by centrality and density. The choice of the Louvain algorithm was due to its excellent performance in recognizing distinct and modular clusters in extensive bibliometric networks, making it especially appropriate for keyword-based thematic analysis (Büyükkidik, 2022). In the quadrant of Basic Themes, the cluster that includes entrepreneurial intentions, TPB, students and the theory of planned behaviour reflects a fundamental but underdeveloped framework of the literature. These concepts are pivotal to research but need further theoretical development and empirical refinement. The Niche Themes quadrant features sustainable entrepreneurship, risk-taking propensity, and proactive personality. These themes are internally cohesive and theoretically robust, yet they are more specialized and less connected to broader research discussions. Themes such as subjective norms, entrepreneurial education, and perceived behavioural control seem to be centrally placed, serving as bridges across multiple areas. Their intermediate position suggests they are becoming more relevant while maintaining conceptual coherence. The thematic map confirms that the field is rooted in TPB-based constructs, with a developing focus on psychological traits and sustainability. It also reveals opportunities for enhancing the integration of core constructs with current challenges in entrepreneurship education.

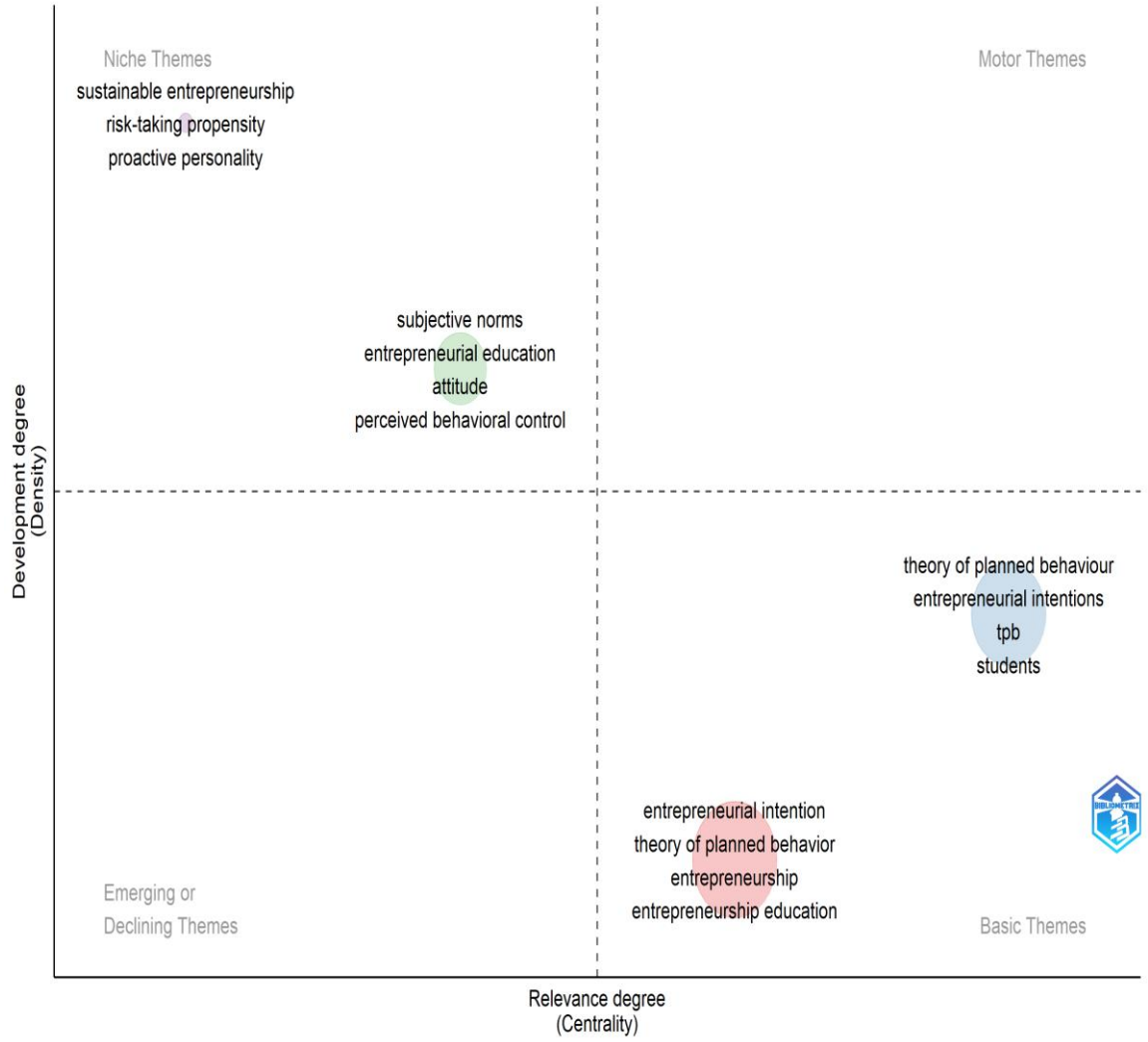


Figure 7. Thematic map. *Source: Author's own*

A thematic evolution analysis was conducted using author keywords and the Louvain clustering algorithm to track the progression of scholarly attention over time. Utilizing the top 50 keywords with at least five occurrences in clusters, the dataset was segmented into five temporal sections from 2020 to 2025. As illustrated in Figure 8, entrepreneurial intention consistently emerged as the leading and most enduring theme across all periods, which emphasize its foundational role in entrepreneurship studies. Key elements of TPB, such as subjective norms, entrepreneurial attitude, and perceived behavioural control, emerged as significant during the initial years (2020-2023), underscoring the theoretical impact of TPB frameworks. Starting in 2023, the field began to broaden with the introduction of self-efficacy, social entrepreneurship, and entrepreneurial self-efficacy, which indicates a shift towards more intricate psychological and social aspects. In the later sections (2024-2025), new topics such as entrepreneurship education, gender, and risk-taking propensity gained momentum, marking a developing emphasis on entrepreneurial growth's inclusive and educational facets. Importantly, entrepreneurship education maintained a strong, enduring presence with growing connections to other themes, which underscores its increasing theoretical and practical significance. The thematic evolution highlights a shift from traditional behavioural elements to broader, more context-aware subjects, which showcases the field's adaptability to changing educational, social, and cultural trends.

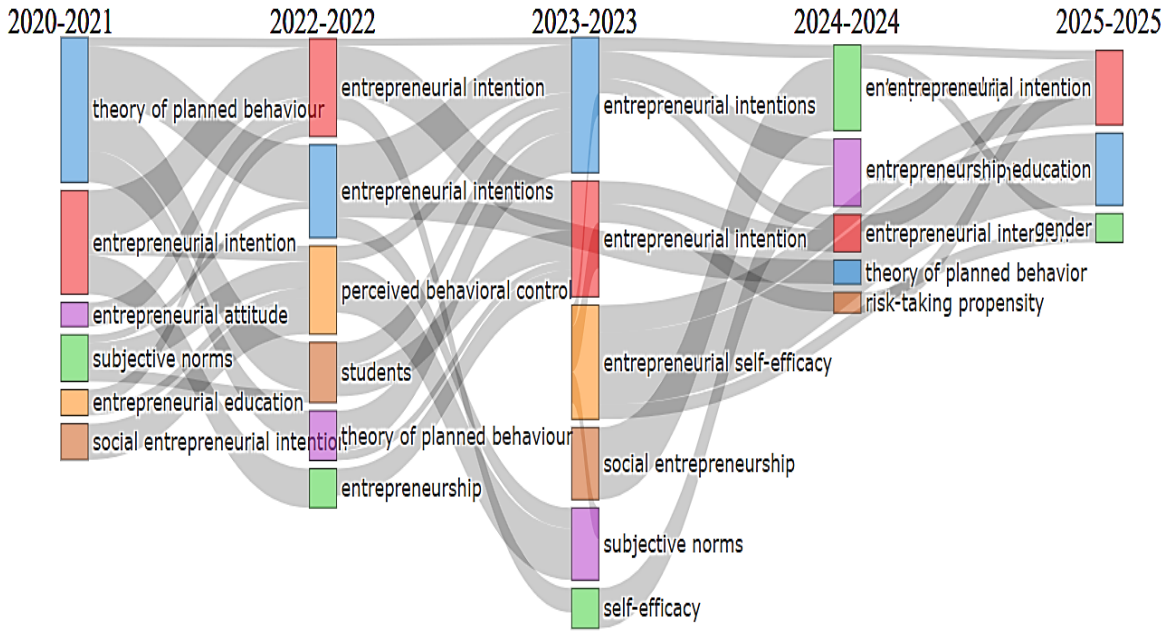


Figure 8. Thematic evolution. *Source: Author's own*

The conceptual structure examination, conducted using Multiple Correspondence Analysis (MCA) on Author Keywords, identified five distinct thematic clusters representing the intellectual framework of research on entrepreneurial intentions. This analysis was derived from the 40 most commonly occurring keywords within a collection of 282 documents, with five clusters chosen to maintain thematic richness while preventing too much division (Figure 9). A dominant group of these clusters (blue cluster) emphasizes entrepreneurial intention, entrepreneurship education, entrepreneurial behaviour, and digital entrepreneurship, which sheds light on the field's strong focus on education and technological trends. Another cluster (red cluster) focuses on social entrepreneurship, social entrepreneurial intention, proactive personality, risk-taking propensity, social capital, and gender, which indicates a growing interest in social and psychological influences. The third cluster (yellow cluster) centres on key TPB constructs, including perceived behavioural control, entrepreneurial self-efficacy, subjective norms, and entrepreneurial passion, thereby reaffirming the theory's ongoing significance. A fourth group (green cluster) examines the connections between entrepreneurial motivation, crowdfunding, and entrepreneurial university, including contexts such as Vietnam, highlighting institutional and regional impacts, particularly in emerging contexts. A smaller cluster (purple cluster) around subjective norm and personal attitude implies more personalized or niche studies. The depicts a mature yet evolving field, balancing theoretical foundations with broadening interdisciplinary and contextual aspects.

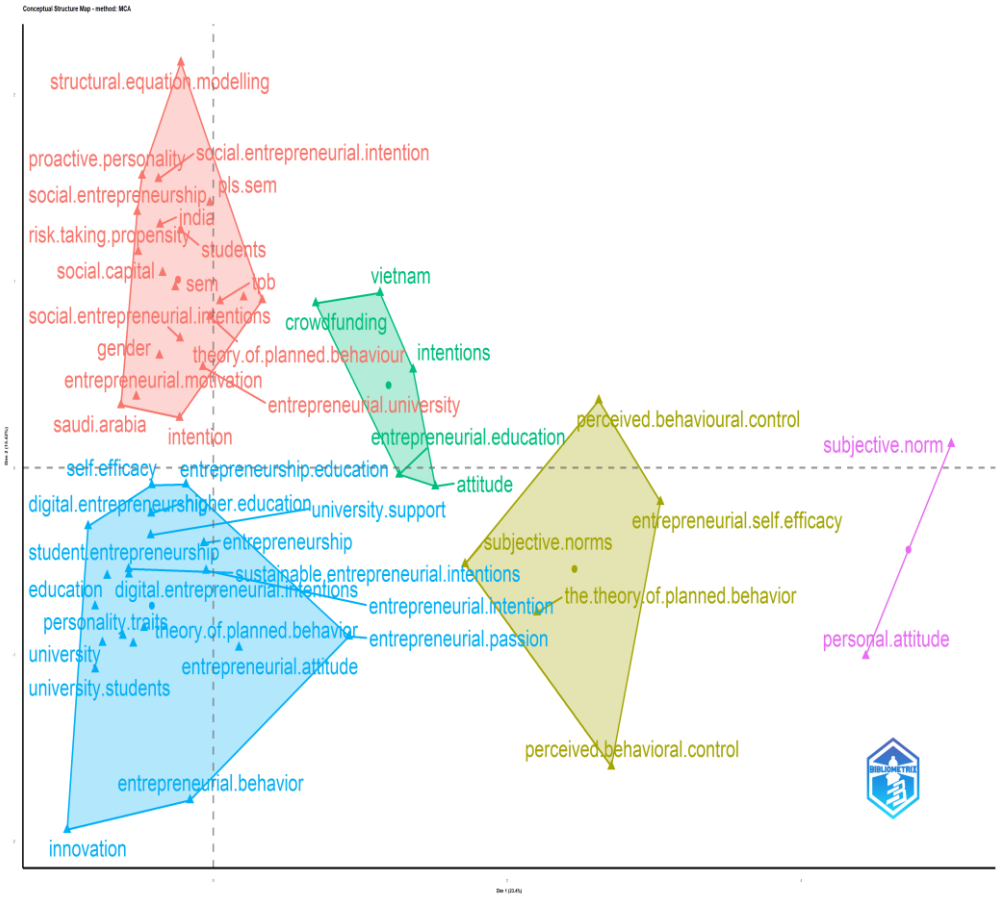


Figure 9. Conceptual structure map. *Source: Author's own*

5. Discussion

The bibliometric findings of this study closely align with Ajzen's (1991) TPB, which underscores TPB's pivotal role in exploring university students' entrepreneurial intentions. The keyword co-occurrence analysis revealed that TPB components, attitudes, subjective norms, and perceived behavioural control are essential elements within the framework. Their frequent references and strong interrelations underscore the model's theoretical robustness and empirical importance in numerous studies. Factorial analysis reinforced this by uncovering a dense cluster around TPB constructs. This observation conforms with past bibliometric reviews, including those by Naskar and Lindahl (2025), who noted the model's enduring interdisciplinary relevance over four decades. Furthermore, the bibliometric patterns identified in this research are consistent with established literature. Maheshwari and Kha (2022) highlighted that TPB accurately predicts entrepreneurial intentions, particularly in educational and training contexts. Likewise, Rajpal and Singh (2024) empirically support that positive attitudes towards entrepreneurship, and high perceived behavioural control enhances students' entrepreneurial intentions. This finding is reiterated in the current study's performance analysis, where these themes consistently appear among the most cited documents and author keywords.

The thematic evolution map offers a deeper understanding of the research development within the TPB framework. From 2020 to 2022, research mainly focused on the classic aspects of TPB. However, in 2023, attention shifted to new themes such as entrepreneurial education, sustainability, digital entrepreneurship, and personality traits like proactiveness and self-efficacy. This is consistent with the findings of Ismail and Hussain (2024), who extend TPB by integrating digital entrepreneurship with environmental and behavioural stimuli among young generations. Similarly, Donaldson et al. (2025) highlighted the combined impact of entrepreneurial self-efficacy and digital competencies in forecasting different types of entrepreneurial intentions, especially those related to intrapreneurial routes.

Moreover, Nam and Thi (2024) enhance the TPB framework by exploring student entrepreneurship in Asia, linking intentions to innovation, institutional context, and national culture, with a notable impact of the Chinese context observed in country-level studies. Additionally, studies based on TPB increasingly feature contextual moderators and new psychological aspects, as seen in clustering results. Various thematic and co-word clusters include institutional support, university education, entrepreneurial ecosystems, digital entrepreneurial intentions, and digital readiness. This signifies a broader academic trend, which recent research by Uddin et al. (2022) and Maheshwari (2021) highlights, advocating a holistic TPB approach that considers individual and structural dynamics.

Furthermore, the findings of this research align with the shifting academic interest in how gender and regional differences influence entrepreneurial intentions. A visual analysis revealed the prominence of the keyword 'gender' in the conceptual structure map, indicating a growing focus on demographic moderators in studies that utilize TPB. This outcome is consistent with the work of Barber et al. (2021) and Ghouse et al. (2021), who explored variations in gender and exposure among university students in India and Oman. Their research supports the view that TPB variables operate differently across diverse sociocultural contexts, a viewpoint now evident in both bibliometric performance metrics and thematic mapping. Moreover, recent research focusing on rural student demographics has highlighted the significance of self-efficacy and human capital in forming entrepreneurial intentions, reinforcing TPB constructs' contextual relevance (Ghouse et al., 2024).

Science mapping analysis has emphasized the gradual incorporation of TPB into interdisciplinary frameworks. The data on co-authorship patterns, journal sources, and institutional output reveal a merging of psychological theories with fields such as education, sustainability, and digital transformation. This interdisciplinary shift correlates with a burgeoning body of work focusing on the effects at the ecosystem level, primarily as institutions aim to integrate entrepreneurship into official curricula and national innovation policies. This development highlights the application of science mapping methods to showcase the persistent and evolving nature of research based on TPB by linking these bibliometric findings with key insights from current TPB literature. The observed trends suggest that while the fundamental constructs of TPB remain central, they are increasingly being enhanced by contextual, psychological, and institutional factors that impact studies on entrepreneurial intention.

6. Conclusions

This bibliometric study enhances the expanding research on entrepreneurial intentions by providing an extensive science mapping analysis of 282 publications based on TPB from 2020 to March 2025. The results confirm the continued importance of Ajzen's TPB in entrepreneurship studies, especially within the context of higher education. The performance evaluation and conceptual frameworks highlight that TPB components, such as attitudes, subjective norms, and perceived behavioural control, are vital for understanding how entrepreneurial intentions form. Thematic and factorial mapping shows the literature's dynamic progression, with increasing connections between TPB and new topics like entrepreneurial education, self-efficacy, sustainability, and digital readiness. Recent work notably explores how human capital, digital skills, and sustainability principles influence students' entrepreneurial paths. Contextual factors like rural backgrounds, institutional support, and national educational strategies expand TPB's theoretical application in varied settings. This study addresses a key gap by concentrating on bibliometric trends in university student populations, a frequently neglected aspect in prior systematic or quantitative reviews. Using Biblioshiny's science mapping tools, this study provides a comprehensive understanding of the field's structure, development, and emerging research areas. It highlights the significance of integrating psychological models with interdisciplinary approaches to grasp the complexity of entrepreneurial intentions in the post-pandemic world. Future studies should further explore the translation from intention to behaviour, employing longitudinal methods and diverse regional settings to comprehend how intentions become entrepreneurial actions. Researchers should expand on this work by investigating underrepresented groups, using mixed-method approaches, and analysing the educational systems and institutional ecosystems that mediate these processes.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

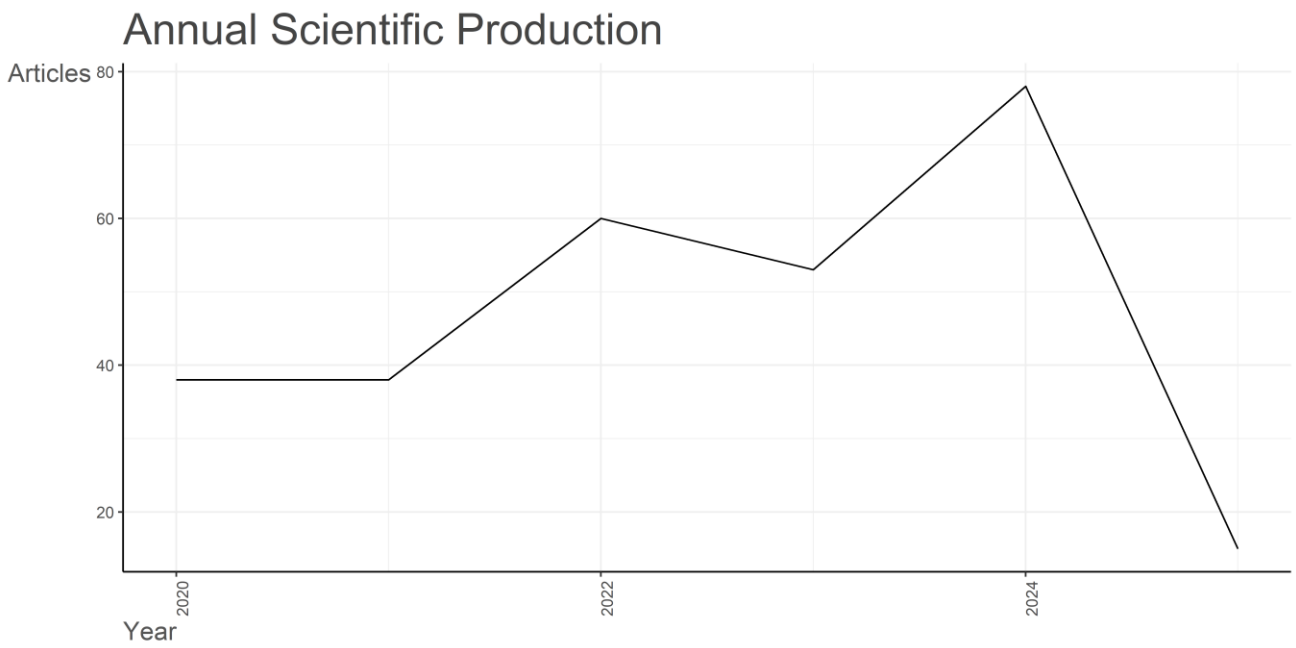
References

- 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
- Al-Mamary, Y. H. S., Abdulrab, M., Alwaheeb, M. A., & Alshammari, N. G. M. (2020). Factors impacting entrepreneurial intentions among university students in Saudi Arabia: testing an integrated model of TPB and EO. *Education and Training*, *62*(7–8), 779 – 803. https://doi.org/10.1108/ET-04-2020-0096
- Anjum, T., Farrukh, M., Heidler, P., & Díaz Tautiva, J.A. (2020). Entrepreneurial Intention: Creativity, Entrepreneurship, and University Support. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(1), 11. https://doi.org/10.3390/joitmc7010011
- 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
- Barba-Sánchez, V., Mitre-Aranda, M., & Brío-González, J. del. (2022). The entrepreneurial intention of university students: An environmental perspective. *European Research on Management and Business Economics*, *28*(2). https://doi.org/10.1016/j.iedeen.2021.100184
- Barber, D., Ghouse, S. M., Gibson, S. G., & Harris, M. L. (2021). Gender and exposure differences in entrepreneurial attitudes of Indian university students. *International Journal of Entrepreneurship and Small Business*, *44*(4), 435-451. https://doi.org/10.1504/ijesb.2021.119728
- Büyükkidik, S. (2022). A bibliometric analysis: A tutorial for the Bibliometrix Package in R using IRT literature. *Journal of Measurement and Evaluation in Education and Psychology*, *13*(3), 164–193. https://doi.org/10.21031/EPOD.1069307
- Ding, X., & Yang, Z. (2022). Knowledge mapping of platform research: a visual analysis using VOSviewer and CiteSpace. *Electron Commer Res*, *22*, 787–809. https://doi.org/10.1007/s10660-020-09410-7
- Donaldson, C., Signes, Á. P., & Villagrasa, J. (2025). Is the road to high growth paved with intrapreneurial intention? The role of entrepreneurial self-efficacy and digital skills on entrepreneurship intention types. *The International Journal of Management Education*, *23*(2), 101174. https://doi.org/10.1016/j.ijme.2025.101174
- Duong, C. D. (2021). Exploring the link between entrepreneurship education and entrepreneurial intentions: The Moderating Role of Educational Fields. *Education + Training*, *64*(7), 869–891. https://doi.org/10.1108/et-05-2021-0173
- Fragoso, R., Rocha-Junior, W., & Xavier, A. (2020). Determinant factors of entrepreneurial intention among university students in Brazil and Portugal. *Journal of Small Business & Entrepreneurship*, *32*(1), 33-57. https://doi.org/10.1080/08276331.2018.1551459
- Fubah, C. N., Kansheba, J. M., Marobhe, M. I., & Tabas, A. M. (2025). Youth entrepreneurship: A systematic literature review of the domain and future research agenda. *Journal of Small Business and Enterprise Development*, *32*(2), 496–516. https://doi.org/10.1108/jsbed-07-2024-0346
- Gallegos, A., Zavala, L. R., Valera, P. M., Bouroncle Velásquez, M. R., Vega-Mori, L., Teodori Puente, D. R., & Valencia-Arías, A. (2025). Factors that determine female entrepreneurial intention: A systematic review of the literature. *Intangible Capital*, *21*(1). https://doi.org/10.3926/ic.2785
- Gangadhara, H., & Kumar, J. P. S. (2024). Integrated model perspective of capital theory, TPB and SCCT towards determines business students' digital entrepreneurial intention in developing country context. *Journal of High Technology Management Research*, *35*(2). https://doi.org/10.1016/j.hitech.2024.100519
- Gao, T., Yang, J., & Ye, Y. (2022). A bibliometric analysis of college students' entrepreneurial intention from 2000 to 2020: Research trends and hotspots. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.865629
- Ghouse, S. M., Barber, D., & Alipour, K. K. (2024). Shaping the future entrepreneurs: Influence of human capital and self-efficacy on entrepreneurial intentions of rural students. *The International Journal of Management Education*, *22*(3). https://doi.org/10.1016/j.ijme.2024.101035
- Ghouse, S. M., Barber, D., Harris, M. L., & Gibson, S. G. (2021). Role of gender and exposure on entrepreneurial attitudes of Omani university students. *Journal for International Business and Entrepreneurship* Development, *13*(1). https://doi.org/10.1504/jibed.2021.112287
- Gieure, C., del Mar Benavides-Espinosa, M., & Roig-Dobón, S. (2020). The entrepreneurial process: The link between intentions and behavior. *Journal of Business Research*, *112*, 541-548. https://doi.org/10.1016/j.jbusres.2019.11.088
- Guerrero-Alcedo, J. M., Espina-Romero, L. C., Garay, J. P. P., & Álvarez, F. R. J. (2022). Psychological capital in university students: analysis of scientific activity in the Scopus database. *Heliyon*, *8*(11). https://doi.org/10.1016/j.heliyon.2022.e11849
- Guleria, D., & Kaur, G. (2021). Bibliometric analysis of ecopreneurship using VOSviewer and RStudio Bibliometrix, 1989–2019. *Library Hi Tech*, *39*(4), 1001–1024. https://doi.org/10.1108/LHT-09-2020-0218
- Haus, I., Steinmetz, H., Isidor, R., & Kabst, R. (2013). Gender effects on entrepreneurial intention: A meta-analytical structural equation model. *International Journal of Gender and* Entrepreneurship, *5*(2), 130-156. https://doi.org/10.1108/17566261311328828
- Huang, L., Cao, M., Xiao, B., Wu, H., Shi, L., & Fang, F. (2024). The top 100 highly cited articles on neck pain: A bibliometric analysis. *Heliyon*, *10*(4). https://doi.org/10.1016/j.heliyon.2024.e25717
- Ismail, M. N., & Hussain, W. M. H. (2024). Mapping digital entrepreneurial intention: A comprehensive bibliometric study. *Heliyon*, *10*(20). https://doi.org/10.1016/j.heliyon.2024.e38988
- Karimi, S. (2020). The role of entrepreneurial passion in the formation of students' entrepreneurial intentions. *Applied Economics*, *52*(3), 331-344. https://doi.org/10.1080/00036846.2019.1645287

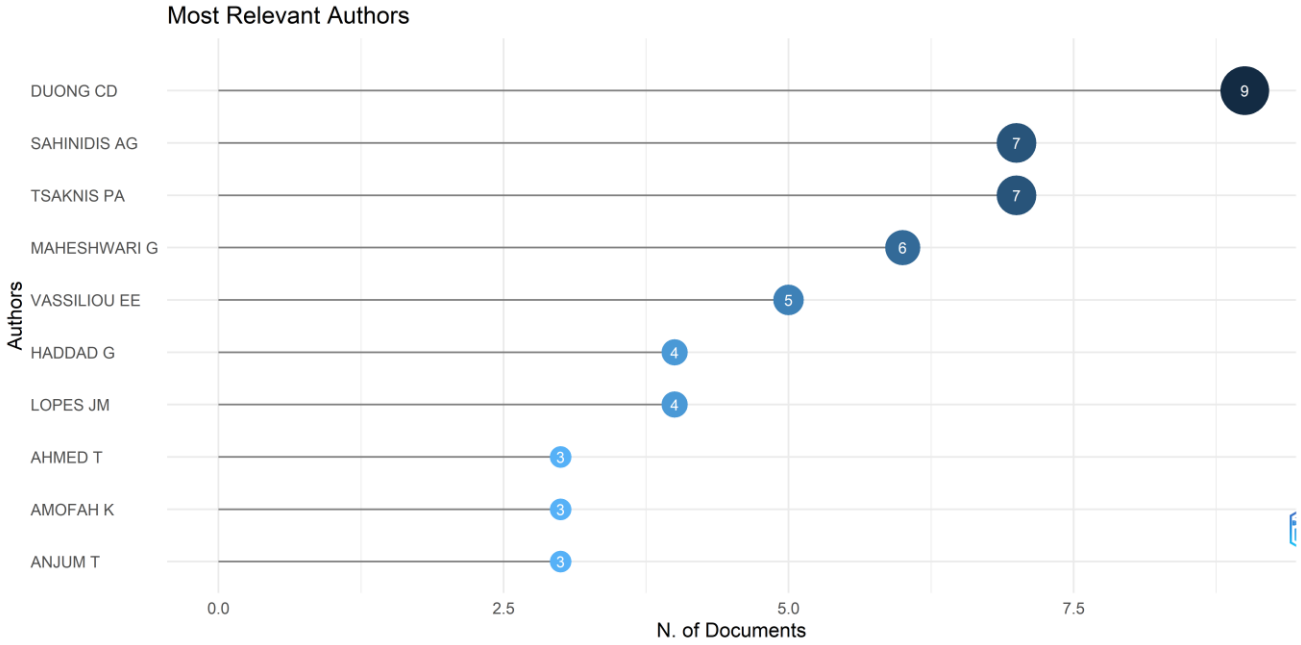
- Kumari, P., & Jaiswal, J. K. (2023). Sustainability and finance in developing nations: current state and future directions. *International Journal of Accounting, Business and Finance*, *2*(2), 40-62. https://doi.org/10.55429/ijabf.v2i2.119
- Liu, Y., Alias, B. S., & Hamid, A. H. A. (2025). Student entrepreneurship competence and its contribution to sustainable development: A systematic review in the context of Chinese higher education. *Sustainability*, *17*(7). https://doi.org/10.3390/su17073148
- Maheshwari, G. (2021). Factors influencing entrepreneurial intentions the most for university students in Vietnam: Educational support, personality traits or TPB components? *Education + Training*, *63*(7-8), 1138–1153. https://doi.org/10.1108/et-02-2021-0074
- Maheshwari, G., & Kha, K. L. (2022). Investigating the relationship between educational support and entrepreneurial intention in Vietnam: The mediating role of entrepreneurial self-efficacy in the Theory of Planned Behavior. *The International Journal of Management* Education, *20*(2). https://doi.org/10.1016/j.ijme.2021.100553
- Maheshwari, G., Kha, K. L., & A. Arokiasamy, A. R. (2022). Factors affecting students' entrepreneurial intentions: A systematic review (2005–2022) for future directions in theory and practice. *Management Review Quarterly*, *73*(4), 1903-1970. https://doi.org/10.1007/s11301-022-00289-2
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS medicine*, *6*(7), e1000097. https://doi.org/10.1136/bmj.b2535
- Nam, H. N., & Thi, T. M. (2024). Entrepreneurial intention and innovation among students: A bibliometric analysis 2014-2024. *Problems and Perspectives in Management*, *22*(4), 635–648. https://doi.org/10.21511/ppm.22(4).2024.48
- Naskar, S. T., & Lindahl, J. M. M. (2025). Forty years of the theory of planned behavior: a bibliometric analysis (1985–2024). *Management Review Quarterly*. https://doi.org/10.1007/s11301-025-00487-8
- Nguyen, T. T., Dao, T. T., Tran, T. B., Nguyen, H. T. T., Le, L. T. N., & Pham, N. T. T. (2024). Fintech literacy and digital entrepreneurial intention: Mediator and moderator effect. *International Journal of Information Management Data Insights*, *4*(1). https://doi.org/10.1016/j.jjimei.2024.100222
- Paiva, L. E. B., Muñoz-Pascual, L., & Galende, J. (2024). Innovation and sustainability from the perspective of entrepreneurial intention: a cross-cultural approach. *Education and Training*, *66*(7), 831 – 850. https://doi.org/10.1108/ET-07-2023-0279
- Rajpal, M., & Singh, B. (2024). How to drive sustainable entrepreneurial intentions: Unraveling the nexus of entrepreneurship education ecosystem, attitude and orientation. *Corporate Social Responsibility and Environmental Management*, *31*(3), 1705 – 1721. https://doi.org/10.1002/csr.2644
- Rustiana (2025). Entrepreneurship education and other exogenous variables in the theory of planned behavior model: A systematic literature review. *Journal of Indonesian Economy and Business*, *40*(1), 140–163. https://doi.org/10.22146/jieb.v40i1.10323
- Sijabat, R. (2024). The application of social learning theory in predicting the antecedents of social entrepreneurial intention. *Business: Theory and Practice*, *25*(1), 210 – 222. https://doi.org/10.3846/btp.2024.18814
- Thanh Nguyen, L., Dang, M. H., Truong Huynh, H., & Duyen Tat, T. (2025). Determinants of entrepreneurial intentions among university students in Vietnam: integrating personality traits, education, and planned behavior. *Cogent Education*, *12*(1). https://doi.org/10.1080/2331186X.2025.2477376
- Thelken, H. N., & de Jong, G. (2020). The impact of values and future orientation on intention formation within sustainable entrepreneurship. *Journal of Cleaner Production*, *266*, 122052. https://doi.org/10.1016/j.jclepro.2020.122052
- Uddin, M., Chowdhury, R. A., Hoque, N., Ahmad, A., Mamun, A., & Uddin, M. N. (2022). Developing entrepreneurial intentions among business graduates of higher educational institutions through entrepreneurship education and entrepreneurial passion: A moderated mediation model. *The International Journal of Management* Education, *20*(2). https://doi.org/10.1016/j.ijme.2022.100647
- Vamvaka, V., Stoforos, C., Palaskas, T., & Botsaris, C. (2020). Attitude toward entrepreneurship, perceived behavioral control, and entrepreneurial intention: dimensionality, structural relationships, and gender differences. *Journal of Innovation and Entrepreneurship*, *9*(1). https://doi.org/10.1186/s13731-020-0112-0

Appendices

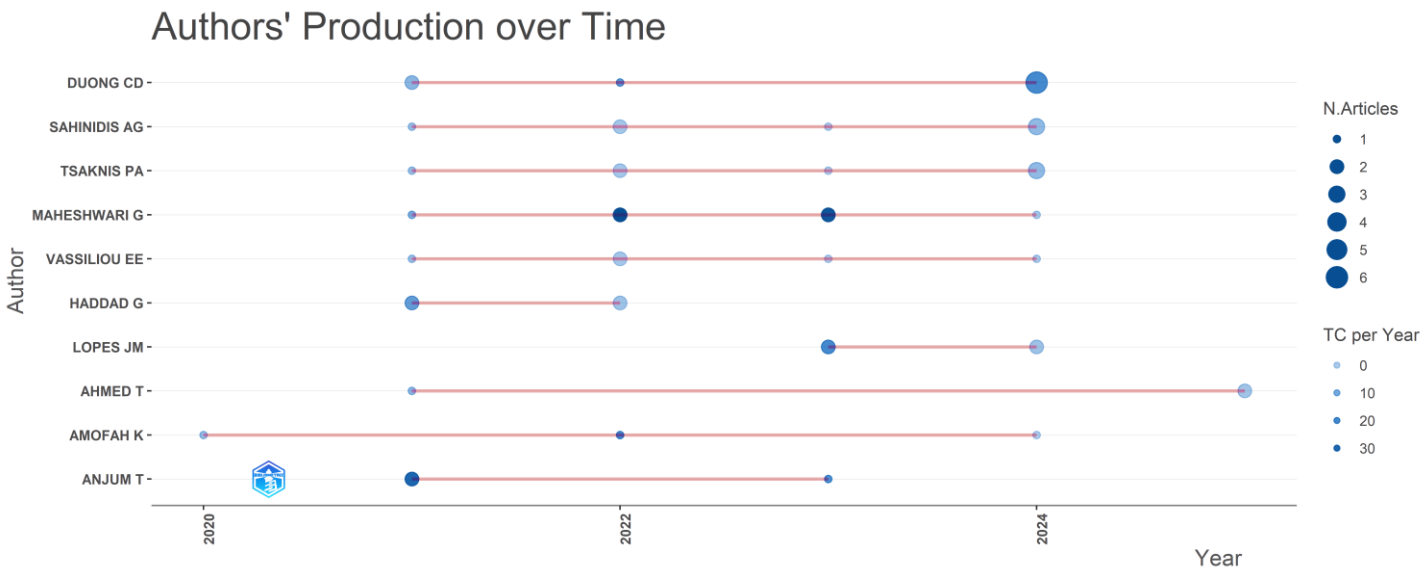
Appendix A. Research production trends (2020-2025). *Source: Author's own*



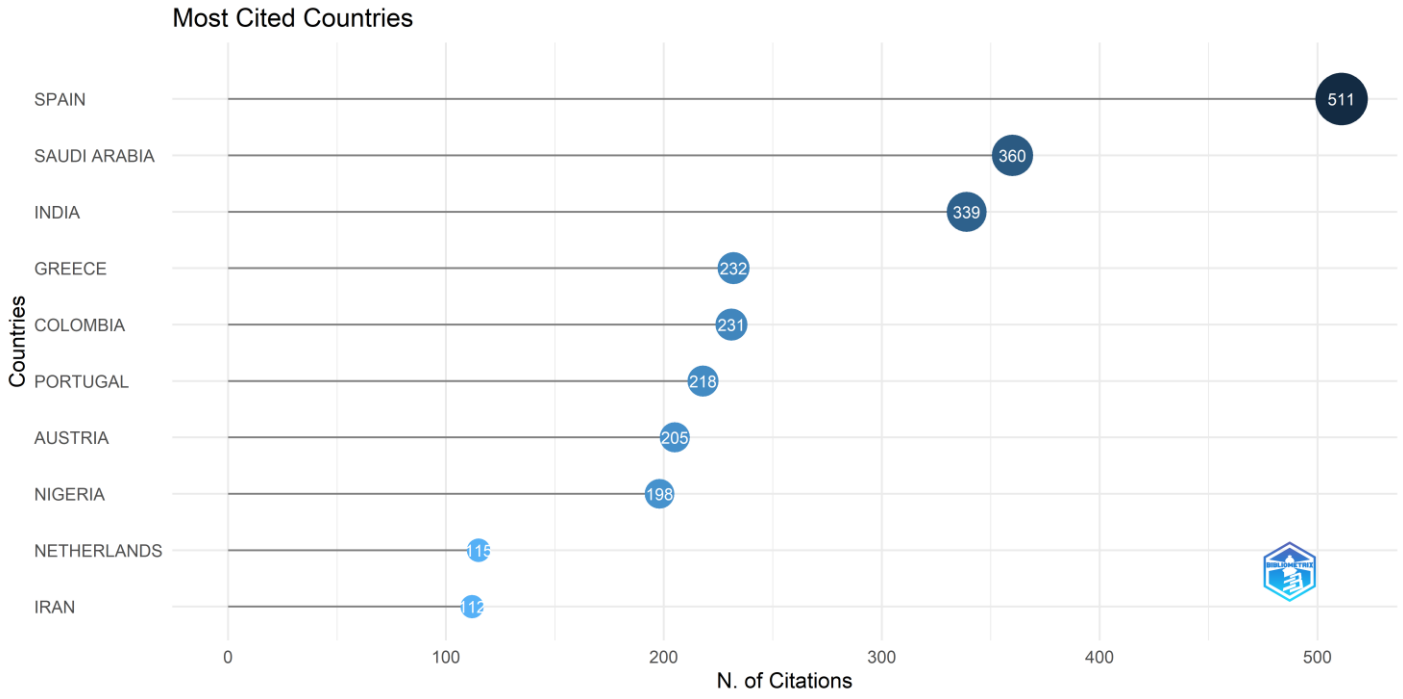
Appendix B. Most relevant and productive authors globally. *Source: Author's own*



Appendix C. Authors' production over time. *Source: Author's own*



Appendix D. Most cited countries in 2025. *Source: Author's own*



Appendix E. Country production over time. *Source: Author's own*

Country	2020	2021	2022	2023	2024	2025	Cumulative Totals
India	8	9	17	33	66	70	203
Spain	8	15	30	39	49	51	192
Colombia	7	7	20	24	28	28	114
Saudi Arabia	10	12	17	20	25	25	109
Malaysia	4	11	13	22	25	26	101
Portugal	2	3	4	18	26	28	81
France	0	4	13	18	20	22	77
Greece	1	3	9	14	17	17	61
China	1	2	4	10	15	16	48
Bangladesh	0	0	3	4	15	17	30

Appendix F. Sources' production over time. *Source: Author's own*

Year	International Journal of Management Education	Education And Training	Cogent Business and Management	Journal Of Innovation and Entrepreneurship	Entrepreneurial Business and Economics Review	Industry and Higher Education
2020	1	1	3	2	0	0
2021	1	5	4	3	2	0
2022	10	7	4	5	4	2
2023	15	9	6	8	6	3
2024	20	13	12	9	7	7
2025	23	13	12	9	7	7

Appendix G. Most relevant affiliations. *Source: Author's own*