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Ethics and Integrity in Accounting and Business: Building Trust in an Intricate World

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Charting Confidence: Bibliometric Insights into Self-Efficacy and Academic Achievement

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Abstract

Self-efficacy has gained significant attention in scientific research over the past few decades. Despite the increasing amount of literature on the topic, there has been limited bibliometric research on self-efficacy and its correlation with academic achievement. In this regard, the present research has addressed this gap by reviewing 480 publications downloaded from Scopus. It examines trends in publication activity, leading institutions and countries, highly cited works, and frequently used author keywords. The VOS viewer software was utilized to facilitate the data analysis and visualization. Research findings indicated a notable rise in publications between 2016 and 2021, followed by a period of stagnation in 2022 and 2023 and a subsequent decline in 2024. Results showed that most publications were in English and predominantly in article format. The study identified Universidad de Granada as the most active institution, with the United States emerging as the leading country in this field. This review enhances the knowledge of self-efficacy and academic achievement by providing valuable insights into publication trends, citation patterns, and collaboration networks among institutions and countries.

Keywords

Bibliometric Analysis, Self-efficacy, Academic Achievement, University Students

1.0 Introduction

Good academic achievement in higher education is crucial for university students to secure a better and more stable job position. In addition to being knowledgeable about their subject matter, students need to equip themselves with various skills while completing their academic courses. For instance, university students should possess good communication, computer, critical thinking, problem-solving, and leadership skills. Employers highly value these skills, making students more attractive job candidates. To achieve this, students need to develop a strong self-efficacy as it plays a pivotal role in their ability to set and accomplish goals (Carroll et al., 2009; Al-Baddareen et al., 2015). Self-efficacy, introduced by Bandura (1986, p. 391), refers to "people's judgments of their capabilities to organize and execute a course of action required to attain designated types of performances". It is the beliefs that the students hold about their abilities to shape their actions in many ways. These self-perceptions guide their decisions, determine how much effort they put into tasks, influence their determination when facing challenges, and affect their mindset and emotions.

In tertiary education, self-efficacy is vital in fostering students' academic involvements and outcomes (Alzabidi et al., 2024). Over the years, scholars have claimed that high self-efficacy can enhance university students' enthusiasm, well-being, resilience, and academic performance, leading to good academic achievement (Alqurashi, 2016; Zimmerman, 2000; Casanova et al., 2024). Conversely, students with lower

self-efficacy will struggle in confronting challenging and complicated tasks (Bandura, 1996), which can negatively affect their persistence and academic results, ultimately increasing the risk of academic dropout and subsequent employment prospects (Carroll et al., 2009; Casanova et al., 2024). Given the above consequences, it is crucial to understand the association between self-efficacy and academic achievement to develop strategies to support university student performance.

However, expanding self-efficacy research carries risks, such as potentially overlooking important areas, since covering the entire topic in depth is nearly impossible. While scholars have conducted various bibliometric analyses on self-efficacy and gained valuable insights, a thorough bibliometric analysis of the field remains underexplored. Thus, by analyzing a comprehensive dataset of academic publications, the present study aims to provide a bibliometric overview of how self-efficacy and academic achievement among university students has been investigated over time and systematically mapping the scholarly landscape, uncovering the evolution of the field, identifying future research potentials, and revealing knowledge clusters and networks. For this aim, we came out with eight research questions (RQs): (RQ1): *What are the annual publication trends over the years?* (RQ2): *Which countries have the highest publication activity?* (RQ3): *Which journals demonstrate high research productivity in this particular subject area?* (RQ4): *What subject area have contributed the most to research on self-efficacy and academic achievement?* (RQ5): *Which institutions have made the most significant contributions?* (RQ6): *Who are the most productive authors?* (RQ7): *Which articles have the most citations?* (RQ8): *What is the most commonly used author keyword?* (RQ9): *How is the progress of the collaboration on research related to self-efficacy and academic achievement?*

Previous researchers have focused their bibliometric analyses on self-efficacy across various student populations and fields. For instance, Valencia-Vallejo et al. (2016) conducted a bibliometric analysis of students' self-efficacy at all educational levels within computational environments. In another study, Norena-Chavez et al. (2022) published a bibliometric analysis of entrepreneurial self-efficacy using the Web of Science Core Collection platform. Saepulmilah and Azhari (2023) examined university students' self-efficacy in learning engagements from 2014 to 2023. Additionally, Ramadhaniyati et al. (2023) focused on self-efficacy in senior high schools, finding that schools in Asian countries, specifically Indonesia, Taiwan, and China, are the most influential in this field. Based on previous studies, the present paper aims to address the gap by conducting a bibliometric analysis of self-efficacy and academic achievement among university students over the past twenty years. This research contributes to the academic community by offering insights into the most impactful studies and significant research areas, guiding future investigations. By mapping the landscape of self-efficacy and academic achievement research, this study provides a foundation for developing targeted interventions and policies to enhance student outcomes in higher education.

The structure of this paper is as follows: The next section reviews the literature on university student self-efficacy and academic achievement. Following that, we will discuss the research methodologies employed for this investigation. Then, we will present the analysis and findings before moving on to the conclusion of the study.

2.0 Literature Review

Entering higher education is a significant adjustment for students, especially those who have never been away from their families or attended a boarding school. Hence, some students may struggle to meet the personal, social, and academic demands imposed by the institutions, making it challenging to navigate the experience of being a higher education student (Casanova et al., 2024). However, university students should not extend this transition period for too long, as they must reach a certain level of achievement to continue in their courses. For higher education institutions, academic achievement is a critical measure of educational success on how well students, lecturers, curriculum, and the institution have met their predetermined learning goals (Kpolovie et al., 2014). Thus, previous studies suggest that students need higher academic self-efficacy to maintain resilience in campus life, as they found that self-efficacy is a strong predictor of better academic achievement (Caprara et al., 2011; Komarraju & Nadler, 2013; Koseoglu, 2015; Zheng et al., 2021; Alzabidi et al., 2024).

In the academic setting, self-efficacy relates to students' confidence in their ability to accomplish tasks and reach their goals (Choi, 2005). Bandura (1977) identified four sources of self-efficacy: verbal persuasion, vicarious experiences, performance outcomes, and emotional arousal, which shape self-efficacy in human behaviour. While, Caprara et al. (2011) identified two aspects of perceived self-efficacy in academic achievement: (a) the perceived ability to master specific academic subjects and curriculum areas effectively, and (b) the perceived ability to self-regulate one's studying and learning activities, such as planning and organizing study times, motivating oneself to complete assignments, and staying focused on academic tasks despite potential distractions. In another study, Hwang et al. (2016) asserted that strong self-efficacy beliefs contribute to high academic achievement, as students with high self-efficacy possess mastery-oriented beliefs. When students believe in their learning ability, they will be willing to carry on multiple tasks, put considerable effort into accomplishing the work given, and undergo any difficulties with an open heart. This finding has confirmed the result of Komarraju and Nadler's (2013) and Koseoglu's study (2015) which stated that students who have high self-efficacy and confidence in their academic performance are also more likely to believe that intelligence can be developed through effort. Koseoglu also noted that students with high self-efficacy approach challenging tasks with a positive mindset, which helps them manage and cope with their anxiety leading to less stress and burnout.

Zheng et al. (2021) documented several strategies that can boost students' self-efficacy such as ascribing students' success or failure to effort instead of ability; providing peer-observation opportunities to increase students' beliefs that they can learn equally well; ensuring that support from trustworthy sources is available; and providing feedback about progress and giving rewards based on it. However, high self-efficacy embedded in student's learning experiences is not enough as it is not the sole indicator of good academic achievement. Other factors such as self-motivation, self-regulation, quality of instruction, and demographic elements also play crucial roles (Koseoglu, 2015; Hwang et al., 2016; Alzabidi et al., 2024). While self-efficacy can drive students to engage more actively in their studies and persist through challenges, it must be complemented by these additional elements to foster well-rounded and sustainable academic success. Therefore, a holistic approach that nurtures self-efficacy and other supportive factors is essential for achieving optimal educational outcomes.

3.0 Methods

Bibliometric analysis is an innovative and precise method for exploring and evaluating scientific research. According to Donthu et al. (2021), this approach is invaluable for understanding and mapping growth and shifts in established fields of study. The main strength of bibliometrics is its broad scope and detailed analysis (Lim & Kumar, 2024). It organizes and interprets large volumes of unstructured data, highlighting the research impact of institutions, researchers, and various sectors, including geographical areas (Okoro et al., 2022). This process helps build a strong foundation for future research, allowing scholars to gain a comprehensive overview, identify knowledge gaps, generate new ideas, and strategically position their contributions. In a further analysis, Mukherjee et al. (2022) identifies ten ways bibliometric analysis benefits theory and practice. Theoretically, it contributes to knowledge development by revealing objective clusters in a field, mapping nomological networks, uncovering social patterns supporting knowledge growth, and identifying knowledge gaps. Practically, it enhances research practice by providing an objective view of research productivity and impact, assessing research reach, detecting social biases, identifying anomalies for further study, and supporting fair decision-making through performance evaluation.

This study started the data search on July 18, 2024, using the Scopus database. Scopus was selected instead of the Web of Science because of its broad coverage in technical, medical, and social sciences, along with its reputation as one of the most extensive databases for documenting scholarly works (Kushairi & Ahmi, 2021; Alhasnawi et al., 2024). The quality of the data we gather hinges a lot on choosing the right keywords because this decision can affect how many results we get. Hence, we used the following query: TITLE-ABS-KEY ("self-efficacy" AND "university students" OR "higher education" OR "tertiary education" AND "academic achievement" OR "academic performance" OR "academic success" OR "academic attainment") AND PUBYEAR > 2004 AND PUBYEAR < 2024 AND (LIMIT-TO (DOCTYPE, "ar") OR LIMIT-TO (DOCTYPE, "cp")) AND (LIMIT-TO (PUBSTAGE, "final")) AND (LIMIT-TO (SRCTYPE, "j") OR LIMIT-TO (SRCTYPE, "p")) AND (LIMIT-TO (LANGUAGE, "English")). After reviewing our inclusion and exclusion criteria, we ended up with 480 publications for our study. These publications, all written in English and published between 2004 and 2024 were either journal articles or conference proceedings at their final publication stage. The final data were entered into the VOS Viewer application to examine citations, co-citations, co-authorship patterns, and the co-occurrence of keywords and phrases.

4.0 Results and Discussion

4.1 Annual Publication Trends

The graph in Figure 1 depicts the trend in publications related to self-efficacy and academic achievement, addressing RQ1, beginning in 2004. There is a significant rise in the number of publications related to self-efficacy and academic achievement from 2016 to 2021. This increase reflects a burgeoning interest in understanding how self-efficacy impacts academic outcomes, highlighting the relevance of the topic within educational research. The COVID-19 pandemic that hit the world between 2019 and 2021 also influenced the number of publications in this area due to the shift to online distance learning, which required university students to adapt to e-learning and develop proficiency in computer and technology self-efficacy. This is evident from the study conducted by Patricia Aguilera (2020), which received the second-highest number of citations for her publication titled "College Students' Use and Acceptance of Emergency Online Learning Due to COVID-19." However, this upward trend was followed by a period of stagnation in 2022 and 2023. This shift might be due to the increasing focus on emerging research areas like artificial intelligence and

sustainability. Alhasnawi et al. (2024) suggest that the heightened emphasis on sustainability and environmental, social, and governance (ESG) factors stems from growing awareness and pressure from the market and regulators where companies are required to integrate sustainability into their business operations for the benefit of future generations. Since this study was conducted in July 2024, it may provide insights into the decline in publications after 2023. This drop could be attributed to the topic's saturation within the academic community, indicating the need for further investigation into the causes of these fluctuations.

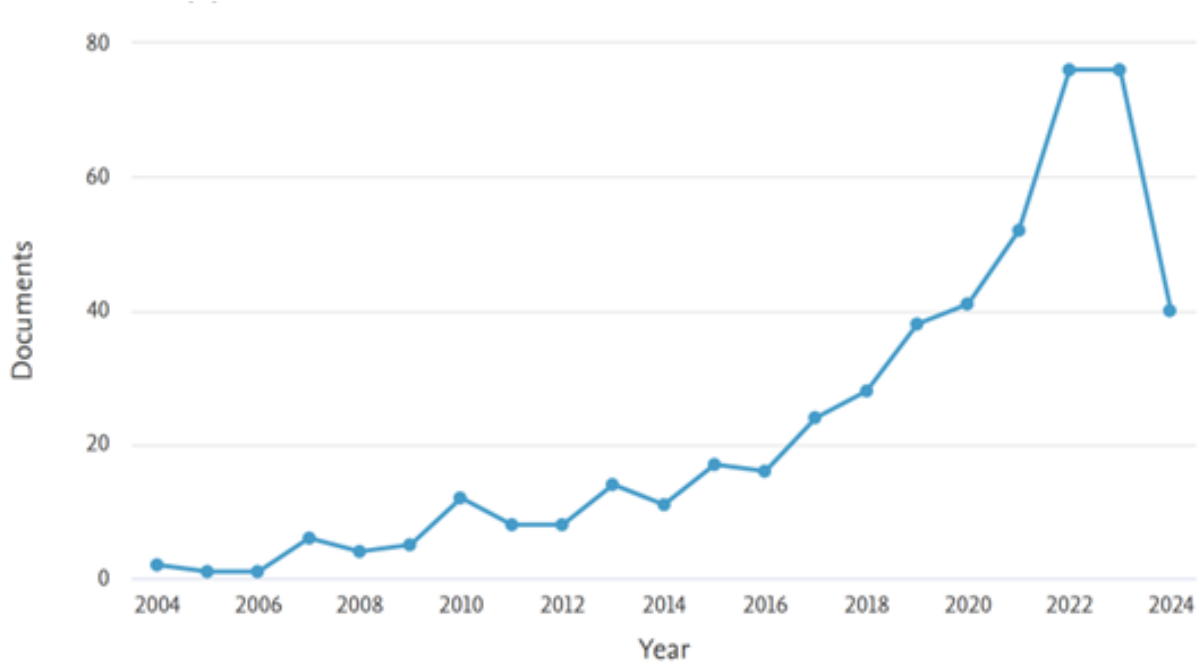

Figure 1: Annual Publication Trends

4.2 Most Prolific Countries

The top ten countries actively contributing to publications on the research topic are shown in Figure 2 below, addressing RQ2. The widespread support for research on university student self-efficacy and academic achievement across 81 countries highlights the global recognition of the importance of this area of study. The United States' leading position, with 77 articles, reflects its strong emphasis on educational research, extensive academic resources, and the prioritization of student success within its higher education system. Australia and China's significant contributions, with 39 publications each, demonstrate their growing focus on understanding and enhancing student outcomes, likely driven by their expanding higher education sectors and increasing international student populations. The United Kingdom's 36 articles underscore its long-standing commitment to educational research and its role as a hub for academic studies within Europe. Overall, these numbers indicate the widespread acknowledgment of self-efficacy as a critical factor in academic achievement, motivating diverse nations to contribute to this vital field of research.

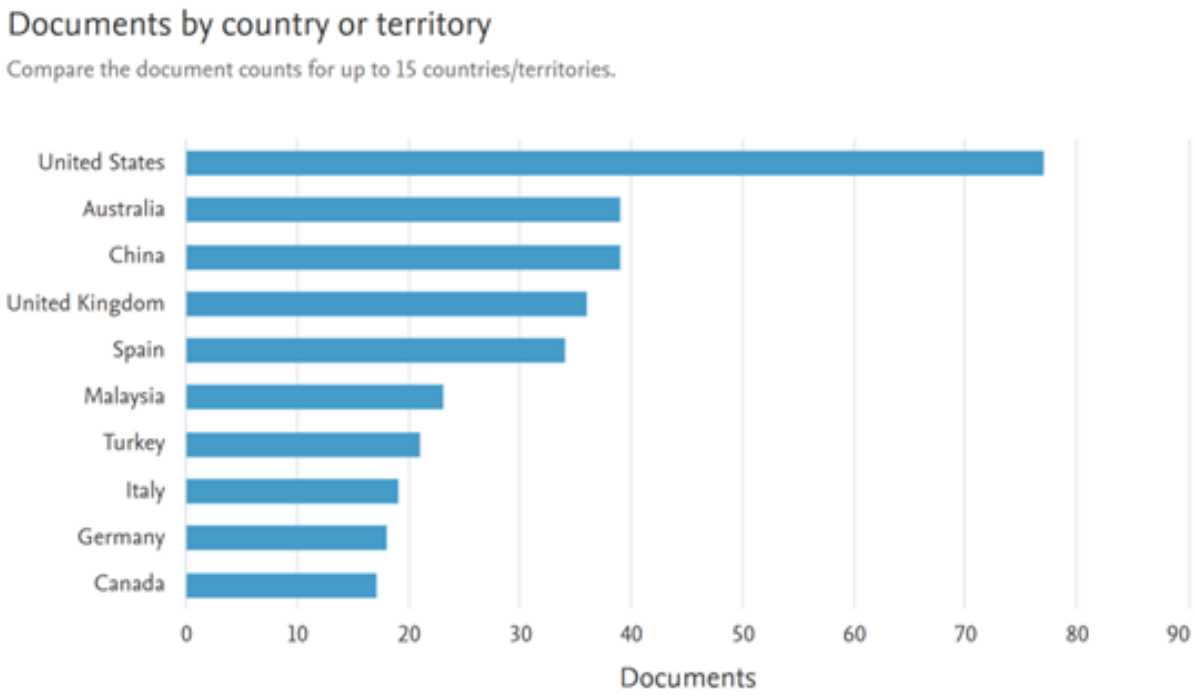

Figure 2: Most Prolific Countries

4.3 Most Productive Journals

Table 1: Most Productive Journals

No	Journal	Total Publications	% (n=480)	Publisher	Cite Score	SJR 2022	SNIP 2022
1	Frontiers In Psychology	24	5	Frontiers Media S.A.	5.3	0.800	1.071
2	Education Sciences	10	2.08	Multidisciplinary Digital Publishing Institute (MDPI)	4.8	0.669	1.323
3	Higher Education Research and Development	9	1.88	Taylor & Francis	7.3	1.428	2.174
4	Studies In Higher Education	9	1.88	Taylor & Francis	10.2	1.614	2.628
5	Sustainability Switzerland	8	1.67	Multidisciplinary Digital Publishing Institute (MDPI)	6.8	0.672	1.086
6	European Journal of Psychology of Education	7	1.46	Springer Nature	6.3	1.161	1.765
7	International Journal of Environmental Research and Public Health	7	1.46	Multidisciplinary Digital Publishing Institute (MDPI)	7.3	0.808	1.077
8	Learning And Individual Differences	7	1.46	Elsevier	6.6	1.640	1.793
9	British Journal of Educational Psychology	6	1.25	John Wiley & Sons	7.7	1.738	2.115
10	Cogent Education	6	1.25	Taylor & Francis	2.3	0.470	1.094

In exploring RQ3, we examined Table 1, which displays the most frequently referenced journals that published the analyzed articles. Out of the 480 articles collected from the Scopus database, they appeared across 149 journals. Following the approach outlined by Mohamad et al. (2023), we evaluated each journal using three different metrics: SCImago Journal Rank (SJR), Source Normalized Impact per Paper (SNIP), and CiteScore. The SCImago Journal Rank (SJR) measures how often a journal is cited, taking into account both the field of study and the prestige of the citing sources. The Source Normalized Impact per Paper (SNIP) assesses how many citations a journal receives compared to what is expected for its field. Finally, CiteScore provides the average number of citations per article published in the journal. Our analysis revealed that Frontiers in Psychology was the most productive, publishing 24 articles (5%) from 2004 to 2023. This journal boasts a CiteScore of 5.30, an SJR of 0.800, and a SNIP of 1.071, indicating its strong citation performance and influence. In comparison, Education Sciences published ten articles (2.08%), and Higher Education Research and Development contributed eight articles (3.74%), showing a more modest presence in our dataset. This analysis helps to identify the key journals driving the discourse in this research area, highlighting their varying levels of influence and specialization.

4.4 Top Subject Area

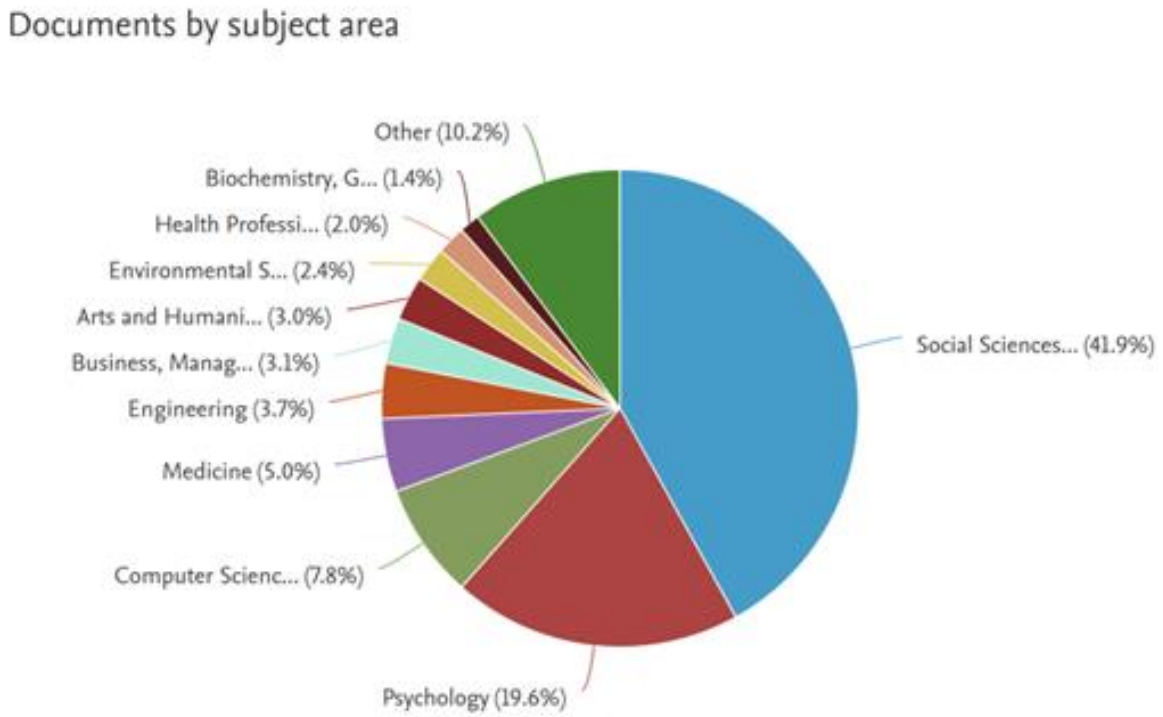

Figure 3: Top Subject Areas in Self-Efficacy and Academic Achievement

Regarding RQ4, Figure 3 highlights the domains of knowledge shaping the landscape of research activities based on the evidence collected. Notably, the Social Sciences domain emerges as the top subject area, accounting for 41.9% of the publications, Psychology at 19.6%, and a diverse category labelled 'Others' at 10.2%. These "Others" encompass areas of multidisciplinary studies, neuroscience, energy, nursing, agricultural and biological sciences, decision sciences, mathematics, economics, econometrics and finance, physics and astronomy, and chemistry. Social Sciences lead in publications on self-efficacy and academic

achievement because they inherently focus on understanding human behavior, societal influences, and educational processes. These fields are integral to studying how individuals perceive their capabilities and how this perception impacts their academic and personal achievements.

4.5 Most Active Institutions

The answer to RQ5 lies in Table 2, which lists the ten most active institutions that have published articles on university student self-efficacy and academic achievement. The data indicates that 160 institutions have contributed to research in this area. To address RQ5, the frequency of publications by each institution was calculated using MS Excel, revealing the most influential contributors. The Universidad de Granada emerged as the leading institution with eight publications, representing 5% of the total. Close behind are the Université Catholique de Louvain, University of New England Australia, and Universidade do Minho, each contributing seven articles, accounting for 4.375% of the total. Additionally, Rijksuniversiteit Groningen and Università degli Studi di Torino produced six articles each on the topic. Notably, these institutions are geographically diverse, originating from different countries.

Table 2: Most Active Institutions

No	Institutions	Publications	% (n=160)	Countries
1	Universidad de Granada	8	5	Spain
2	Université Catholique de Louvain	7	4.375	Belgium
3	University of New England Australia	7	4.375	Australia
4	Universidade do Minho	7	4.375	Portugal
5	Rijksuniversiteit Groningen	6	4	Netherlands
6	Università degli Studi di Torino	6	4	Italy
7	Universiti Kebangsaan Malaysia	5	3.125	Malaysia
8	The University of Auckland	5	3.125	New Zealand
9	Universiteit Gent	5	3.125	Belgium
10	Universidad de Ciencias y Humanidades	5	3.125	Peru

4.6 Most Productive Authors

This study also identified the most productive authors to address RQ 6, as illustrated in Table 3 below. A total of 160 authors have contributed to the research topics under investigation. According to Table 3, H.P. Phan from the University of New England, Australia, stands out as one of the most productive authors, with seven publications and a h-index of 23. With 1,785 citations, Phan's work has been widely recognized and referenced by other researchers, further demonstrating their prominence in the area. In close pursuit is Iraola-Real, I., who has authored five papers and garnered 43 citations. The prominence of Phan, H.P. is underscored by their higher h-index and citation count, reflecting significant influence and scholarly engagement in this area of research.

Table 3: Most Productive Authors

No	Author	Affiliation	Country	TP	*h*-index	PYS	TC
1	Phan, H.P.	University of New England Australia	Australia	7	23	2002	1,785
2	Iraola-Real, I.	Universidad de Ciencias y Humanidades	Peru	5	3	2019	43

3	De Clercq, M.	Université Catholique de Louvain	Belgium	4	11	2013	434
4	Galand, B.	Université Catholique de Louvain	Belgium	4	24	2002	1,728
5	Valcke, M.	Universiteit Gent	Belgium	4	53	1987	10,590
6	Almeida, L.S.	Universidade do Minho	Portugal	3	30	1989	3,146
7	Ferla, J.	Universiteit Gent	Belgium	3	5	2008	506
8	Frenay, M.	Université Catholique de Louvain	Belgium	3	17	2004	903
9	Ghislieri, C.	Università degli Studi di Torino	Italy	3	23	2008	1,848
10	Schuyten, G.	Universiteit Gent	Belgium	3	11	1987	783
Notes: TP = total publications; h = h-index; TC = total citations; PYS = publication year start							

4.7 Highly Cited Articles

To address RQ7, the citation networks of 480 publications were analyzed. Centrality analysis of citations and constructing a network visualization map of these citations were carried out using the Harzing Publish or Perish and VOSViewer tools. The 480 articles on self-efficacy and academic achievement accumulated a total of 12,946 citations, with each document receiving an average of 27 citations. Table 4 lists the most highly referenced publications on this research topic. The most cited article, titled "Psychological Correlates of University Students' Academic Performance: A Systematic Review and Meta-Analysis" by Richardson M., Abraham C., and Bond R., was published in 2012 and received 2,131 citations. The next most cited paper, "College Students' Use and Acceptance of Emergency Online Learning Due to COVID-19," by Patricia Aguilera-Hermida A., garnered 665 citations. In VOSViewer, the minimum citation threshold was set at 5, resulting in 261 of the 480 papers meeting the criterion. Of these, only 85 were relevant and grouped into 24 clusters. Figure 4 shows a network diagram of document citations, highlighting the most cited articles related to the study topic.

Table 4: Highly Cited Articles

No	Authors	Title	Journal	Citations
1	Richardson M.; Abraham C.; Bond R.	Psychological correlates of university students' academic performance: A systematic review and meta-analysis	Psychological Bulletin	2131
2	Patricia Aguilera-Hermida A.	College students' use and acceptance of emergency online learning due to COVID-19	International Journal of Educational Research Open	665
3	Schneider M.; Preckel F.	Variables associated with achievement in higher education: A systematic review of meta-analyses	Psychological Bulletin	566
4	Reid J.L.; Hammond D.; Boudreau C.; Fong G.T.; Siahpush M.	Socioeconomic disparities in quit intentions, quit attempts, and smoking abstinence among smokers in four western countries: Findings from the International Tobacco Control Four Country Survey	Nicotine and Tobacco Research	274
5	Tang Y.M.; Chen P.C.; Law K.M.Y.; Wu C.H.; Lau Y.-Y.; Guan J.; He D.; Ho G.T.S.	Comparative analysis of Student's live online learning readiness during the coronavirus (COVID-19) pandemic in the higher education sector	Computers and Education	265

6	Fenollar P.; Román S.; Cuestas P.J.	University students' academic performance: An integrative conceptual framework and empirical analysis	British Journal of Educational Psychology	230
7	Ballen C.J.; Wieman C.; Salehi S.; Searle J.B.; Zamudio K.R.	Enhancing diversity in undergraduate science: self-efficacy drives performance gains with active learning	CBE Life Sciences Education	207
8	Wang S.-L.; Wu P.-Y.	The role of feedback and self-efficacy on web-based learning: The social cognitive perspective	Computers and Education	206
9	Alhadabi A.; Karpinski A.C.	Grit, self-efficacy, achievement orientation goals, and academic performance in university students	International Journal of Adolescence and Youth	202
10	Putwain D.; Sander P.; Larkin D.	Academic self-efficacy in study-related skills and behaviours: Relations with learning-related emotions and academic success	British Journal of Educational Psychology	174

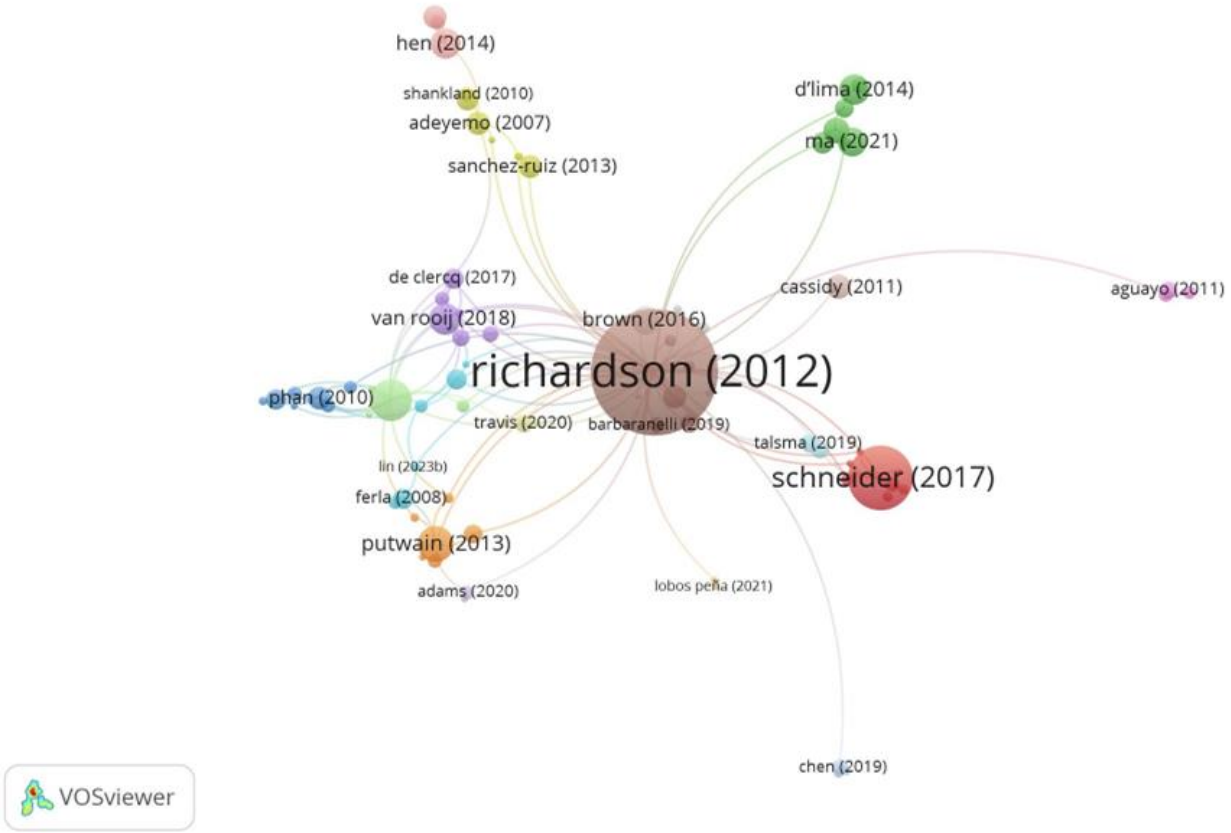

Figure 4: Network Visualization Map of Citations by Documents

4.8 Top Authors Keywords

In response to RQ8, this study aimed to determine the most frequently used keywords by researchers in self-efficacy and academic achievement publications. We used VOSViewer software to conduct a keyword co-occurrence analysis based on data compiled in MS Excel. We applied fractional counting with a minimum threshold of five occurrences per publication. Out of 1,280 keywords, 44 met this criterion and

were all interrelated. Consequently, we created a network visualization map to display only the interconnected keywords. Figure 5 illustrates this map, highlighting that "self-efficacy" (with 167 occurrences) is the most frequently used keyword in relevant publications. Other prominent keywords include "higher education" (94 occurrences colored with purple circle), "academic performance" (92 occurrences colored with blue circle), and "academic achievement" (69 occurrences).

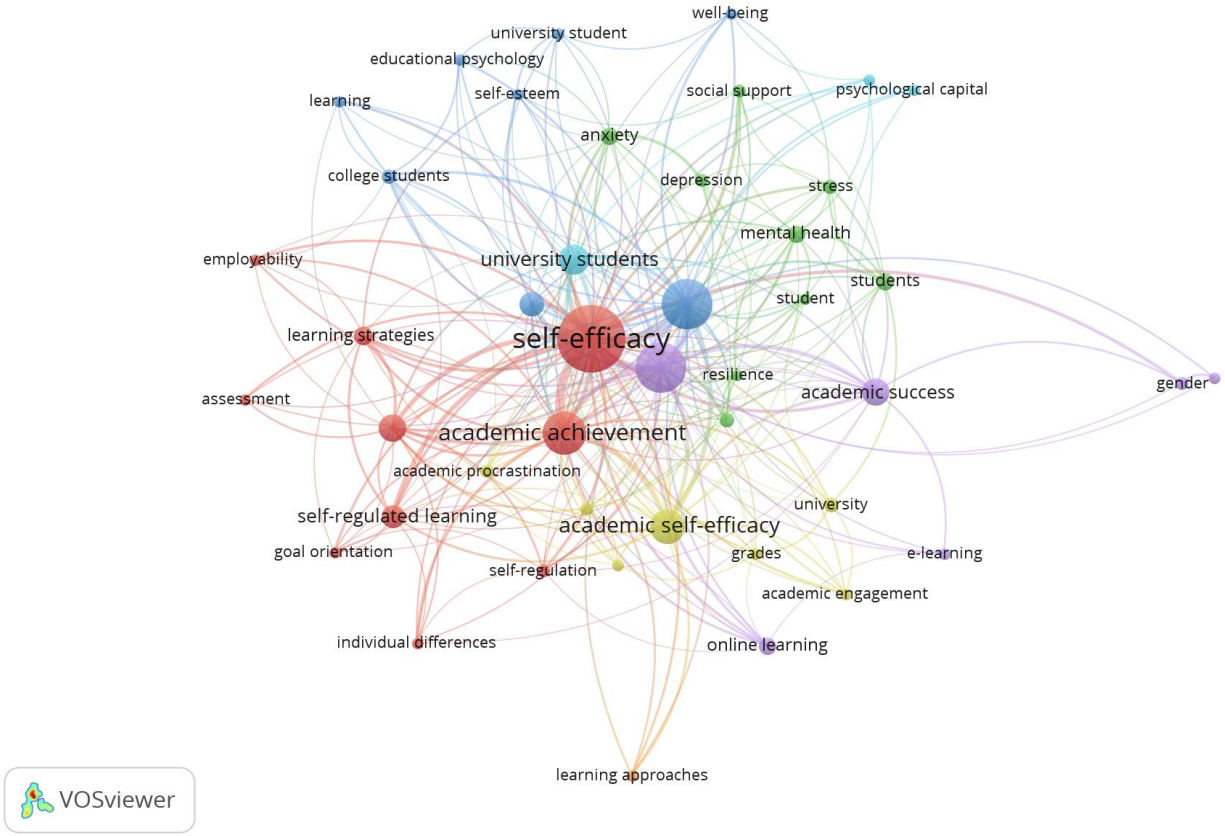

Figure 5: Network Visualization Map for Co-Occurrence of the Author's Keywords

4.9 Co-authorship and Co-Citation Analysis

The final research question focuses on the progress of collaboration in research related to self-efficacy and academic achievement. To address this, the study utilizes VOSViewer software to conduct a co-authorship analysis, examining the current relationships among authors. From the dataset, 1,491 authors contributed to 480 articles on the topic. Figure 6 presents a network visualization map of co-authorship among the authors studied. Using fractional counting, with a minimum threshold of two papers and citations, 84 authors met the criteria. However, only 9 of these authors are connected, as indicated by only one cluster on the network visualization map. This demonstrates limited collaboration among researchers in this field, suggesting diverse research interests or weak collaborative ties.

The current study also generated a network visualization map based on country co-authorship, using fractional counting where each country had to have a minimum of five documents and citations. Out of 85 countries involved in publications on self-efficacy and academic achievement, only 34 met this criterion. Figure 7 illustrates the co-authorship network by country, revealing eight distinct clusters. The largest

circles on the map indicate that authors from the United States, China, Australia, the United Kingdom, and Malaysia have collaborated extensively with other nations on this research topic. The result suggests that these five countries have established strong research networks and collaborative alliances. It also highlights the nations actively participating in international research cooperation, potentially serving as gateways for future collaborations aimed at enhancing self-efficacy among university students and improving academic performance on a global scale.

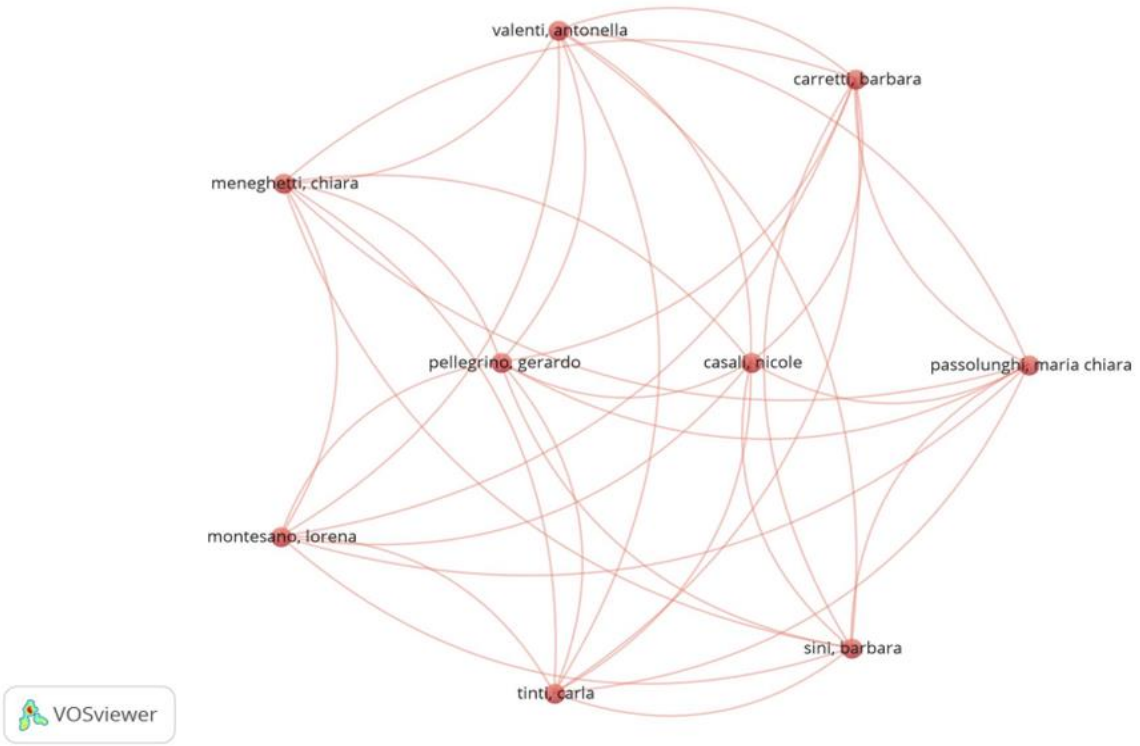

Figure 6: Network Visualization Map of Co-Authorship by Authors

Our study also includes a co-citation analysis to identify the main intellectual contributors within a particular field. Donthu et al. (2021) mentioned that a co-citation network links two publications when they are both cited in the reference list of another publication. This method helps scholars identify thematic clusters based on frequently cited works. However, co-citation analysis focuses mainly on well-cited publications, potentially overlooking more recent or niche works. Therefore, co-citation analysis is particularly useful for business scholars interested in identifying foundational publications and core knowledge areas. Using VOSViewer software, we created a network visualization map to examine the co-citation network among authors cited in publications related to the study topic. We employed fractional counting and set a minimum threshold of twenty citations per author. Figure 8 illustrates the resulting co-citation network of cited authors. Among the 40,795 authors who submitted papers, 190 met the criteria, and all were interconnected. The network visualization map reveals seven distinct clusters, each representing a different aspect of discussions on self-efficacy and academic achievement, with authors in the same cluster frequently citing each other.

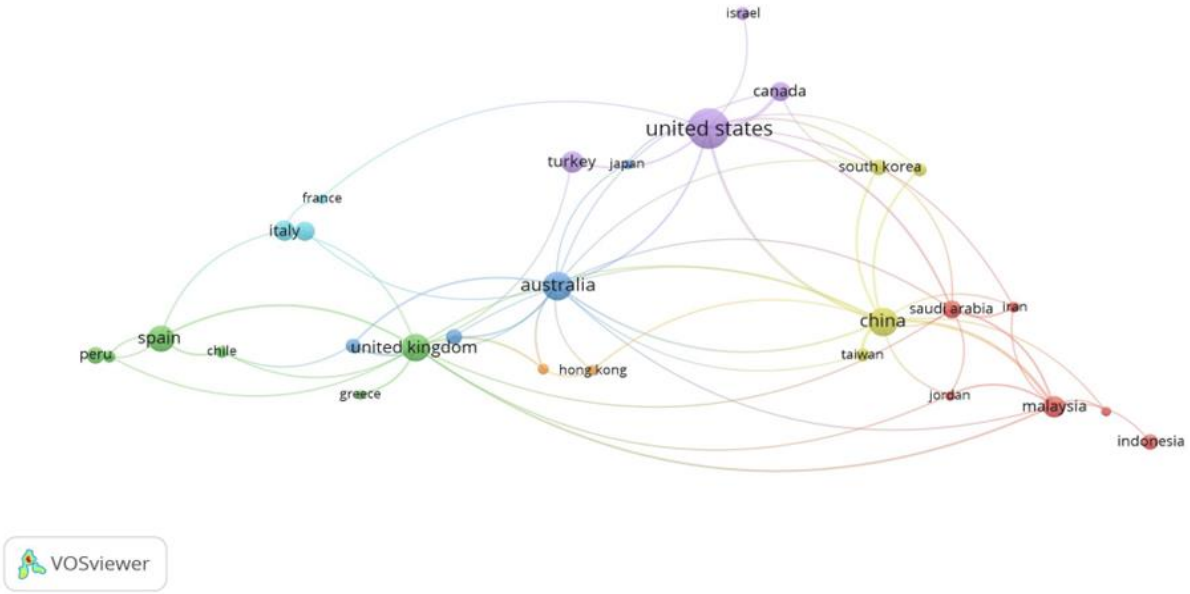

Figure 7: Network Visualization Map of Co-Authorship by Countries

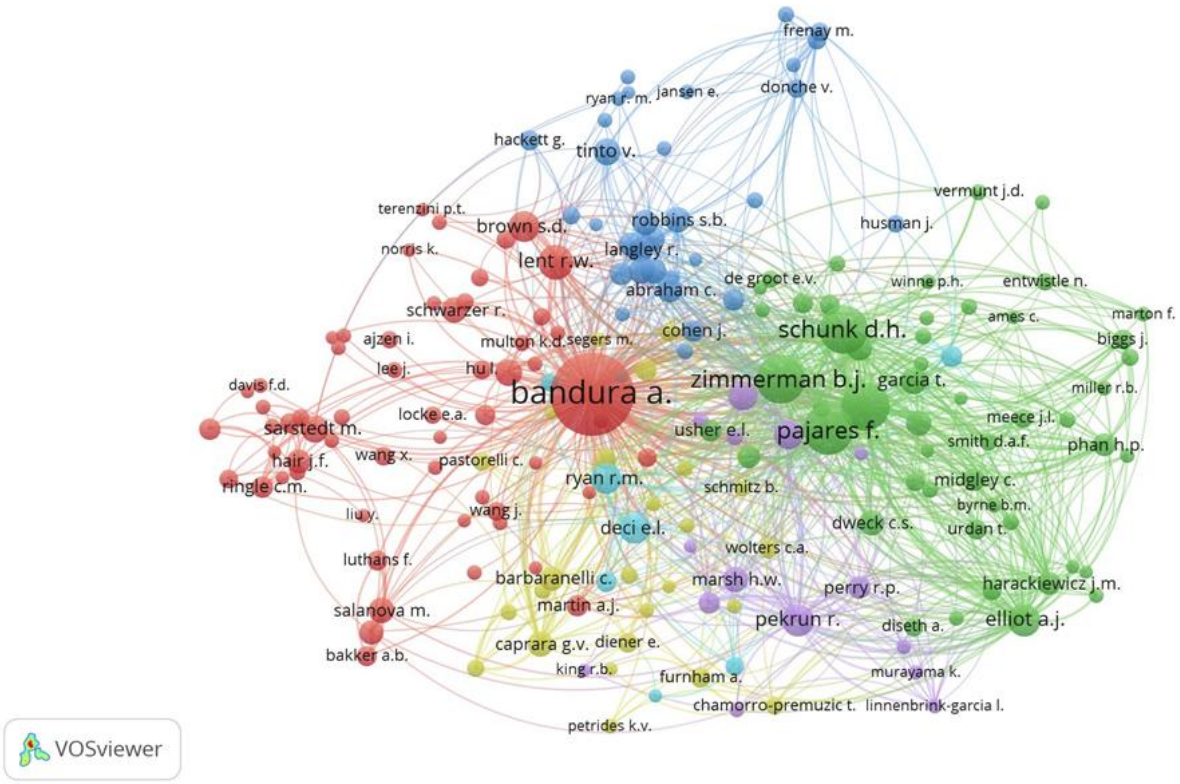

Figure 8: Network Visualization Map of Co-Citation of Cited Authors

5.0 Conclusion

The study portrayed a thorough review of published literature regarding university students' self-efficacy and its connection to academic achievement over the past twenty years. The researchers analyzed 480

publications from journals indexed in the Scopus database between 2004 and 2024 using various methodologies, including keyword co-occurrence analysis, co-authorship analysis, citation analysis, and co-citation analysis. They visualized the data using VOSViewer to map the findings and illustrate the interconnected network of relevant terms from scholarly publications. The results demonstrate a significant increase in publications between 2016 and 2021, followed by stagnation in 2022 and 2023 and a decline in 2024. The United States emerged as the leading contributor to articles on this topic, with the Universidad de Granada in Spain as the most active institution in research output. The most frequently used keywords in this field included self-efficacy, higher education, academic performance, and academic achievement. The United States also plays a significant role in collaborative efforts with other countries in this research area, followed by China, Australia, the United Kingdom, and Malaysia.

The importance of this study lies in its ability to inform educators, policymakers, and researchers about the current state of knowledge in this field and to identify areas that need further investigation. Although there has been extensive research on self-efficacy, there remains a need for comprehensive bibliometric analysis to synthesize existing findings, identify global trends, and encourage future collaboration among authors, institutions, and countries. As a significant predictor of academic performance, it is essential to examine other critical factors that can boost students' confidence in a challenging learning environment. By thoroughly addressing the issue of academic self-efficacy, the academic community can create a supportive learning environment, promote mastery experiences, encourage goal setting and self-assessment, foster collaborative learning, integrate growth mindset principles, and provide access to resources and support, ultimately benefiting both students and educational institutions.

This study has some limitations. The research might not fully capture the breadth of available literature, as it relied solely on articles from a single scholarly database. Future researchers could broaden their scope by exploring additional sources like Web of Science, PubMed, Dimensions, or Lens. Including different types of documents, such as conference papers and book chapters, would also add value. Future studies should explore diverse approaches using diverse software tools such as ScientoPi or Gaphi and other methodologies such as meta-analysis and systematic literature reviews. These steps could offer fresh perspectives on the literature's evolution and enhance the overall impact of the research.

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