

Trends and Insights in Academic Procrastination of Students: A Bibliometric Analysis

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Abstract

Academic procrastination, the behavior of delaying studies or assignments despite knowing the negative consequences, is prevalent across all educational stages, impacting academic development and education quality. This study systematically analyzes and summarizes research on academic procrastination among students from 2013 to 2023 through bibliometric analysis using the PRISMA framework and VOSviewer. Scopus was selected, yielding 801 publications then refined to 346 relevant articles. Results show the distribution of publications on students' academic procrastination in recent years, identifying the most relevant journals and authors, significant contributing countries, primary research keywords, and key subjects. It also presents trends and recommendations for future research on students' academic procrastination. Future research should cover academic procrastination behaviors at different stages of education, with particular attention to students in the lower grades. Additionally, the influence of external factors such as parents and teachers should be explored to gain a comprehensive understanding of the phenomenon and to develop effective coping strategies.

Keywords: Academic Procrastination, Students, Bibliometric Analysis, VosViewer, Scopus

Introduction

Procrastination is defined as the voluntary delay of an intended action despite expecting that the delay will result in a worse outcome (Steel, 2007). This behavior, which is widespread in various human activities, is now particularly notable in academic environments. Academic procrastination is considered the postponement of tasks and activities related to learning and research. It involves students voluntarily delaying planned academic actions despite knowing that such delay will likely lead to adverse outcomes (Steel & Klingsieck, 2020).

Academic procrastination has a negative impact on students as well as the education system as a whole. Academic procrastination profoundly impacts students' learning outcomes

and psychological well-being. It can not only reduce academic performance and self-efficacy but also trigger a range of negative emotions, such as anxiety, depression, and self-blame, which can have long-term adverse effects on students' mental health (Amani Nezhad et al., 2022; Asberg & Bendtsen, 2023; Huntley et al., 2022; Rajapakshe, 2021; Wang et al., 2022). Moreover, frequent procrastination behaviors can impair students' time management abilities, hinder the development of effective self-regulation and discipline skills, and subsequently affect their academic performance and daily life (K.S et al., 2023). Additionally, academic procrastination poses significant challenges to the entire educational process, from primary and secondary education to higher education, affecting the efficiency and effectiveness of the educational system (Kaur & Jena, 2022; Xue et al., 2021).

This study aims to analyze trends in academic procrastination-related publications using bibliometric analysis, providing insights for future research. Furthermore, it offers a visualization of current research trends in student academic procrastination. Data were collected from the Scopus database to answer the following research questions:

1. What is the distribution of academic procrastination-related publications over the past decade?
2. Which journals and authors are most relevant to academic procrastination research?
3. Which countries have made the most significant contributions to the field of academic procrastination research?
4. What are the primary research keywords in the past decade of students' academic procrastination?

Method

This bibliometric study follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) structure (David Moher et al., 2009). The primary objective of this comprehensive analysis is to elucidate and analyze research on student academic procrastination over the past decade. This study thoroughly investigates publications, prolific authors and key countries in this field. Additionally, it shows frequently discussed topics and trends within the field. Scopus is recognized as the largest abstract and citation database, containing literature across a wide range of peer-reviewed subjects (Baas et al., 2020). Due to its extensive coverage and reputable standing in scientific paper analysis, the Scopus database was carefully chosen as the primary source for this review on June 4, 2024. The study aimed to retrieve academic articles on student academic procrastination by setting inclusion and exclusion criteria (Table 1). Articles with titles, abstracts, or keywords like "academic procrastination," "academic delay," "learning procrastination," or "learning delay" were selected, focusing on student populations using terms such as "students," "children," "graduates," "pupils," and "adolescents." Only articles published between 2013 and 2023 in social sciences, psychology, and humanities were considered, focusing on research articles published in journals and written in English. These criteria ensured a relevant and manageable set of articles for studying academic procrastination or delay.

Table 1

Inclusion and Exclusion Criteria

Search Queries	Inclusion Criteria	Exclusion Criteria
TITLE-ABS-KEY ("academic procrastination" OR "academic delay" OR "study procrastination" OR "learning procrastination") AND ("students" OR "children" OR "graduates" OR "pupils" OR "school-aged children" OR "adolescents" OR "teenagers" OR "undergraduates" OR "postgraduates") AND PUBYEAR > 2012 AND PUBYEAR < 2024 AND (LIMIT-TO (SUBJAREA , "SOCI") OR LIMIT-TO (SUBJAREA , "PSYC") OR LIMIT-TO (SUBJAREA , "ARTS")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (LANGUAGE , "English"))	students n=801	non-student (eg. teachers , researchers etc.)
	The year of 2013-2023 n=606	>2013 and in 2024 n=195
	Social science, psychology and arts and humanities n=464	Subject areas in medicine, Computer Science, Business, etc. n=142
	Article n=425	Review, book chapter, Conference paper, etc. n=39
	Journal n=423	Book series n=2
	English language n=375	Other languages n=48

Detailed inclusion and exclusion criteria ensured that the selected literature was highly relevant to the study topic and up-to-date. The PRISMA framework outlines the entire process of systematically screening and selecting the literature, enhancing the scientific rigor and reliability of the research methodology, thereby ensuring the high quality and credibility of the research findings (Figure 1).

Result

This section presents the bibliometric research results on students' academic procrastination. Covering a decade of research data, it provides multifaceted insights into this evolving field. The content includes annual distribution, influential journals and countries, prolific authors, and main research keywords. The aim of this comprehensive analysis is to depict the current state of global research on students' academic procrastination over the past ten years, identify the fundamental elements driving this scholarly inquiry, and offer a comprehensive perspective on the study of students' academic procrastination.

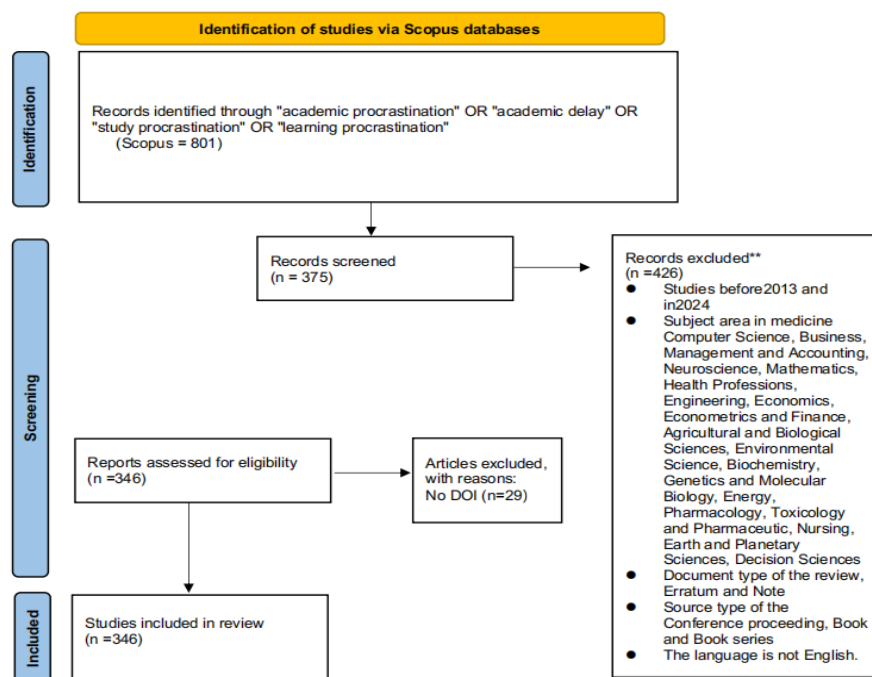


Figure 1 PRISMA framework for this review

Yearly Distribution of Publications

Figure 2 displays the annual publication count on students' academic procrastination from 2013 to 2023. The data reveals a significant increase in research publications over this decade. From 2013 to 2015, the number of publications was relatively low, with fewer than 20 articles per year. There was a notable rise in 2017, reaching a peak of approximately 30 articles. Between 2018 and 2020, the number of publications remained stable, averaging between 30 to 40 articles annually. However, starting in 2021, there was a sharp increase in publication numbers, with peaks of around 70 articles in 2022 and 80 articles in 2023. This trend indicates that research on students' academic procrastination has garnered increasing attention over the past ten years, particularly in recent years, with a marked rise in related studies. This reflects the growing academic interest in this phenomenon, establishing academic procrastination as a significant research issue within the education sector.

Most Relevant Journals and Authors in Students' Academic Procrastination Research

A search of the Scopus database identified the top five of the most relevant journals on this topic. Detailed information about these journals, including total publications (TP), total citations (TC), citation score, most cited article, times cited, is presented in table 2. As shown in Table 2, the most relevant journal in the field of academic procrastination research is "Frontiers in Psychology," with a total publication count of 22,447 and a total citation count of 119,948, and a citation score of 5.3. Following this is "Current Psychology," published by Springer Nature, with a total publication count of 4,238, a total citation count of 19,554, and a citation score of 4.6. The most cited article in "Frontiers in Psychology" discusses procrastination behavior in computer-based learning environments and has been cited 69 times. In "Current Psychology," the most cited article models variables of problematic internet use and social media use, with 55 citations. Additionally, "Learning and Individual Differences" is another significant journal in the field, with a total publication count of 327, a total citation count of 2,163, and a citation score of 6.6. The most cited article in this journal explores the

impact of using motivation regulation strategies on academic procrastination, academic performance, and well-being, cited 118 times.

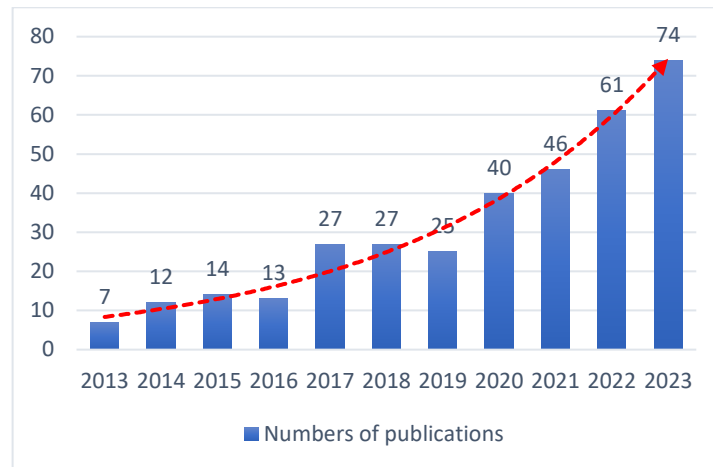


Figure 2. The distribution of students' academic procrastination by year

Table 2

Top 5 journals in academic procrastination among students

	Journals	TP*(2020-2023)	TC*(2020-2023)	Ctie Score (2023)	Most Cited articles	Times Cited
	Frontiers In Psychology	22,447	119,948	5.3	Procrastinating behavior in computer-based learning environments to predict performance: A case study in Moodle	69
	Current Psychology	4,238	19,554	4.6	Modeling of variables related to problematic internet usage and problematic social media usage in adolescents	55
	Learning And Individual Differences	327	2163	6.6	Effects of using motivational regulation strategies on students' academic procrastination, academic performance, and well-being	118
	Personality And Individual Differences	2,137	18,171	8.5	Procrastination, personality traits, and academic performance: When active and passive procrastination tell a different story	96
	Electronic Journal of Research In Educational Psychology	120	144	1.2	Gender differences in the relationship between academic procrastination, satisfaction with academic life and academic performance	76

Note: TP= Total Publications, TC= Total Citation

On the other hand, another aspect of question 2 investigates the most prolific authors. Table 3 details each author's total publications (TP), total citations (TC), h-index, the most cited article and times cited, and their affiliated academic institutions. These data reveal the level of recognition their research has received within the academic community.

Table 3 presents detailed information on the top 5 most productive authors in the field of academic procrastination research. These authors made significant contributions to the study of academic procrastination. The most prolific author was “Dresel, M.” with a total number of publications of 130, with the most h-index of 28, in addition to a total of 2307 citations, and the author is from Info Universität Augsburg. This is followed by “Fries, S.” with a total number of publications of 92, with an h-index of 28, in addition to a total of 2093 citations, and the author is from the University of Münster. These two authors were far ahead of the other authors.

Table 3

Top 5 most productive authors in Academic Procrastination Research

	Name	TP*(2020-2023)	TC*(2020-2023)	H-index	Most cited article	Times cited	Affiliation
1	Fries, S.	92	2,093	28	Effects of using motivational regulation strategies on students' academic procrastination, academic performance, and well-being	118	University of Münster
2	Grunschel, C.	26	709	14	Effects of using motivational regulation strategies on students' academic procrastination, academic performance, and well-being	118	Universität Bielefeld
3	Hen, M.	32	543	12	Academic Procrastination, Emotional Intelligence, Academic Self-Efficacy, and GPA: A Comparison Between Students With and Without Learning Disabilities	124	Tel-Hai College
4	Bäulke, L.	12	127	6	Interrelations between motivational regulation, procrastination and college dropout intentions	40	Universität Augsburg
5	Dresel, M.	130	2,307	28	Interrelations between motivational regulation, procrastination and college dropout intentions	40	Info Universität Augsburg

Note: TP= Total Publications, TC= Total Citation

Most Productive Countries in Students' Academic Procrastination Research

Analyzing the countries with the most publications in academic procrastination research and their collaborative relationships reveals the global distribution of research efforts and international collaborations, highlighting which countries have significant influence in this domain.

Figure 3 displays the most productive countries in academic procrastination research. Specifically, China, Turkey, and the United States have the highest research output, each publishing 47 related articles, demonstrating their significant contributions to this field. International collaboration enhances scientific research performance. Meanwhile, figure 4 illustrates the cooperative relationships among different countries in the field of academic procrastination research. It shows that the United States, China, and Germany are the primary research nations, collaborating closely with multiple countries. The cooperation between the United States and China and between the United States and Germany is particularly prominent, indicated by thicker lines representing frequent collaboration.



Figure 3 A map based on the most productive countries in students' academic procrastination research

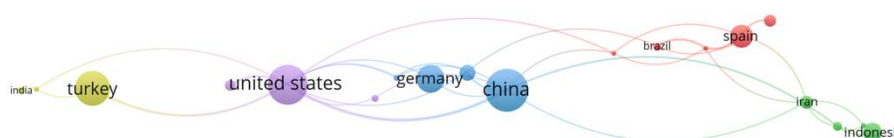


Figure 4. A map based on the relationship of co-authorship with countries

Primary Research Keywords in Students' Academic Procrastination

Visualization analysis was conducted using Vosviewer software. The analysis of all 57 keywords appearing in the literature revealed the major themes and trends within the research field. This process effectively displayed the distribution of keywords, providing a solid foundation for further discussion and analysis. Figure 5 maps the co-occurrence relationships of all keywords from the Scopus database. The keyword with the highest co-occurrence (Oc) of 224 and a link strength of 538 is "academic procrastination," followed by "procrastination" (Oc = 88). Other frequently co-occurring keywords include "university" (Oc=68), "self-regulation" (Oc=38), "self-efficacy" (Oc=34), "motivation" (Oc=21), "self-control" (Oc=18), and "perfectionism" (Oc=14). Additionally, Figure 6 analyzes the co-occurrence of author keywords. The most frequently appearing keyword is "academic procrastination," with an occurrence of 224 and a total link count of 182, followed by "procrastination" (Oc=61). Other keywords such as "university students" (Oc=35), "self-efficacy" (Oc=33), "self-regulation" (Oc=28), "academic achievement" (Oc=17), and "academic performance" (Oc=11) are also included in the map. Since these keywords were actively chosen by the authors, they represent the core concerns of scholars studying academic procrastination. In addition, the keywords in the figures show that academic procrastination research is not limited to specific

educational stages but also involves students in various professional fields, such as medical students.

Discussion

The number of publications on academic procrastination has steadily increased over the past decade, with a significant rise in 2022 and 2023. This trend indicates growing academic interest in the study of academic procrastination. This trend is likely related to the challenges posed by home-based learning during the COVID-19 pandemic. Students faced multiple challenges associated with online learning, including the need for independent study, lack of interaction with teachers and peers, and difficulties in time management. This learning mode led many students to exhibit academic procrastination behaviors, deliberately delaying academic tasks, which has drawn significant academic attention. (Muarifah et al., 2022). Notably, in recent years, the number of related publications from China has rapidly increased on the international stage. An increasing number of Chinese scholars have conducted in-depth research on student academic procrastination across different educational stages and disciplines. This phenomenon may be related to China's unique cultural background and parenting styles (Khalid et al., 2019; Li et al., 2023). Additionally, as Chinese students face increasing academic anxiety and competition, academic procrastination has become a critical issue that requires urgent attention. This has prompted researchers to intensify their focus and efforts on this area of study (Yang et al., 2019).

However, the overall volume of research remains relatively low. Bibliometric analysis indicates that over the past decade, research on student academic procrastination constitutes only a small fraction of the overall academic research. This suggests that while academic attention to this issue has grown, it is still insufficient compared to other fields in educational psychology. This limitation in research quantity may affect our comprehensive understanding of academic procrastination and the development of effective intervention strategies. Future research should expand the scope and sample size to more fully uncover the causes and effects of academic procrastination.

Furthermore, despite the increasing research on students' academic procrastination, the existing studies primarily focus on university students and adolescents. Research on younger students, particularly elementary school students, remains scarce. Researchers are interested in academic procrastination in higher education because it is prevalent among university students, with an estimated 80% exhibiting procrastination behaviors, making this topic highly relevant (Gonzalez-Brignardello et al., 2023). Additionally, university student samples are easier to obtain and more receptive to academic research, facilitating efficient study conduction (Ziegler & Opdenakker, 2018). Thus, ignoring academic procrastination among younger students could result in an incomplete understanding of this phenomenon and miss crucial opportunities for early intervention and educational strategies.

Moreover, researchers widely acknowledge a significant relationship between academic procrastination and students' academic performance (Aldalham, 2023; Cheng et al., 2023; Shaked & Altarac, 2023; Xu et al., 2023). Over the past decade, the literature has primarily focused on internal psychological factors such as self-efficacy, self-regulation, perfectionism, and motivation, all of which significantly impact academic procrastination. Lower self-efficacy is correlated with higher procrastination (Yang et al., 2021), while strong self-regulation skills

A complex network diagram centered on the concept of "academic procrastination". The diagram features numerous nodes, each representing a related concept, connected by a dense web of lines. The nodes are color-coded and include:

- Central Node:** "academic procrastination" (blue)
- Top Nodes:** "anxiety" (green), "depression" (green), "gender" (green), "self-control" (green), "mindfulness" (purple), "students" (purple), "perfectionism" (red), "self-efficacy" (blue), "test anxiety" (blue), "fear of failure" (orange), "self-esteem" (orange).
- Right Side Nodes:** "university students" (blue), "academic performance" (red), "motivation" (red), "academic" (red), "online learning" (red), "consciousness" (red).
- Bottom Nodes:** "self-regulation" (purple), "academic achievement" (cyan), "higher education" (yellow), "covid-19" (yellow), "adolescents" (yellow), "medical students" (cyan).
- Left Node:** "academic motivation" (blue).

The connections between nodes are represented by lines of various colors (blue, green, red, orange, yellow, purple, cyan) and thicknesses, indicating the strength or type of relationship between the concepts. The diagram illustrates a highly interconnected network of factors influencing academic procrastination.

Conclusion

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student academic procrastination over the years, with a significant rise in related studies during the pandemic. The analysis identified the most influential journals, countries, and authors, highlighting that the United States, China, and Germany are the major contributors to this field, and that "Frontiers in Psychology" is a key platform for publishing related research. Keyword analysis showed that self-efficacy, self-regulation, and academic performance are the primary focuses of researchers. The findings underscore the necessity of further exploring the issue of academic procrastination, particularly among younger students. Future research should pay more attention to this demographic and investigate the impact of external factors such as family and teacher support on academic procrastination, providing a more comprehensive understanding of the phenomenon and offering more effective guidance for educational practice.

Limitation

This study has several limitations. First, it used only the Scopus database, excluding others like Web of Science and JSTOR, potentially missing important research. Second, the keywords might not cover all related studies, risking omissions. Limiting the study to the past ten years excluded earlier research, affecting the understanding of long-term trends. Only English-language publications were included, ignoring research in other languages. Lastly, the study primarily reveals trends and patterns without explaining the complex causality. Future studies could address these limitations by integrating multiple databases, expanding keywords and time frames, and using various methods for a systematic literature review.

In conclusion, bibliometric and visualization analysis provides a comprehensive overview of the research field of academic procrastination among students, enabling the quick identification of research themes, trends, and hotspots. Additionally, these methods reveal collaboration networks among researchers and the impact of research outputs, offering valuable references for further research and practice in addressing student academic procrastination.

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