# Academic Procrastination in Higher Education: The Evolution of Research

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*Abstract - This study aims to reveal research trends in the period 2007-2023 and analyze the evolution of research on the issue of academic procrastination in higher university using a type of literature study with a bibliometric approach. The total articles that were then analyzed were obtained from the Scopus database with three keywords and after passing the screening process as many as 88 articles. The data is then processed using VOSViewer and analyzed quantitatively, descriptively, and qualitatively of the content. The results showed that the development of publications related to "academic procrastination in higher education" fluctuated greatly and formed four clusters of scientific network maps. Furthermore, the results of qualitative content analysis show that self-efficacy, cross-sectional studies, time management, anxiety, and perfectionism are factors forming academic procrastination behavior in students, besides the impact of academic procrastination resulting in academic achievement and mental health. The data only uses documents in English and documents that meet several criteria for research needs with a publication time between 2007 until 2023, and only sample documents of university students. Based on the results of the research, it contributes to the evolution of research development on this topic as well as knowing the factors that shape academic procrastination behavior. Based on a search on the Scopus database, no research on this topic has been examined using a bibliometric analysis approach, so this study seeks to fill the research gap and represent the evolution of research on this topic.*

*Keywords: Academic Procrastination, Bibliometric Approach, Evolution of Research, Higher Education.*

**Abstrak –** Penelitian ini bertujuan untuk mengungkap tren penelitian pada periode 2007-2023 dan menganalisis evolusi penelitian mengenai isu prokrastinasi akademik di perguruan tinggi dengan menggunakan jenis studi literatur dengan pendekatan bibliometrik. Jumlah artikel yang kemudian dianalisis diperoleh dari basis data Scopus dengan tiga kata kunci dan setelah melalui proses penyaringan sebanyak 88 artikel. Data kemudian diproses menggunakan VOSViewer dan dianalisis secara kuantitatif, deskriptif, dan kualitatif dari kontennya. Hasil penelitian menunjukkan bahwa perkembangan publikasi terkait *"prokrastinasi akademik di perguruan tinggi"* berfluktuasi secara signifikan dan membentuk empat klaster peta jaringan ilmiah. Selain itu, hasil analisis konten kualitatif menunjukkan bahwa efikasi diri, *cross-sectional studies*, manajemen waktu, kecemasan, dan perfeksionisme adalah faktor-faktor yang membentuk perilaku penundaan akademik pada mahasiswa, selain dampak dari prokrastinasi akademik yang berpengaruh terhadap pencapaian akademik dan kesehatan mental. Data hanya menggunakan dokumen berbahasa Inggris dan dokumen yang memenuhi beberapa kriteria untuk kebutuhan penelitian dengan waktu publikasi antara 2007 hingga 2023, serta sampel dokumen dari mahasiswa perguruan tinggi. Berdasarkan hasil penelitian, artikel ini memiliki berkontribusi pada evolusi perkembangan penelitian tentang topik ini serta mengetahui faktor-faktor yang membentuk perilaku prokrastinasi akademik. Berdasarkan pencarian di basis data Scopus, belum ada penelitian tentang topik ini yang diperiksa menggunakan pendekatan analisis bibliometrik, sehingga penelitian ini bertujuan untuk mengisi kesenjangan penelitian dan merepresentasikan evolusi penelitian tentang topik ini.

**Kata Kunci:** Prokrastinasi Akademik, Pendekatan Bibliometrik, Evolusi Penelitian, Pendidikan Tinggi.

## 1. INTRODUCTION

The success of an educational institution can be seen from its ability to produce students with quality competencies (Wibowo et al., 2020). Competencies of problem-solving, communication, interpersonal competencies (Succi & Canovi, 2020), and technical competence is one of the skills that can be obtained from educational institutions. Higher education is one of the educational institutions that seeks to create human resources with superior skills and abilities through the provision of academic assignments to its students (Hwang et al., 2020). But not infrequently cause new problems (Yupanqui-Lorenzo et al., 2023). Students find it difficult (Mohammadi Bytamar et al., 2020), are unable to manage time (Cho & Lee, 2022), fatigued with learning materials, fear of failure (Serra

Agirakca-Dinc & Halil Eksi, 2019), Cheating occurs, and feels pressure to do academic assignments (Giray et al., 2023), and feel stressed so they prefer to do fun activities (Kuftyak, 2022). This condition results in students delaying the completion of academic assignments is known as procrastination and will have a negative impact on students (Sefriani et al., 2022).

Furthermore, The Centers for Disease Control (CDC) reported in 2022 almost 45% of students in America experienced feelings of sadness and hopelessness especially during the pandemic, especially as many as 20% of students had serious intentions to commit suicide. If we know in detail about the effects and patterns of academic procrastination, we can intervene to reduce this behavior. Therefore, this issue is important because it also affects the welfare of students' psychological conditions by knowing the sources and ways to reduce academic procrastination through programs and curricula designed by universities that reflect the quality of institutions in the provision of education. This step is also aligned with an effort to help students to reduce this behavior.

The concept of academic procrastination behavior is inseparable from the world of academia (Rahmawati et al., 2024). At the theoretical level, the attention of academics to conduct research related to academic procrastination in higher education requires further exploration and periodic reviews through several research reviews such as systematic analysis, meta-analysis, and bibliometric analysis to highlight research developments related to this issue. Like previous studies on academic procrastination have inconsistencies in results, research by Touloupis and Campbell (2024) by using quantitative field research methods that students tend to try to suppress academic procrastination attitudes, while Sepiadou and Metallidou (2023) convey that academic procrastination attitudes in students become higher if students with a sense that academic tasks are challenging with a high gap between their personal standards and achievements. In another case with Ashraf et al. (2023) It was found that there were no significant differences based on sex in their research, but perfectionism had a significant effect on academic procrastination while self-efficacy did not have a significant effect. However, the results of other studies show that sex differences also have different results on women's fear of failure higher than men, which is one of the causes of academic procrastination. Most research in this field is carried out with quantitative and qualitative field research. So far, bibliometric analysis on this issue has not been found.

Based on the statement above, the purpose of this study to reveal research trends in the period 2007-2023 and analyze the evolution of research on the issue of academic procrastination in higher universities using a type of literature study with a bibliometric approach. Bibliometric analysis in this study the purpose is a complete bibliometric analysis ranging from article citations, authors, journals, countries, affiliations, and h-index. However, this study only focused on 2 keywords can directly condition the results of the study. Therefore, to address the literature gap, this study will conduct a bibliometric analysis to analyze the evolution of research, identify major academic agents that try to continue to develop research in this field, identify key research topics from existing ones, provide direction for future research, as well as an important part of conducting content analysis aimed at providing an overview of academic procrastination in universities tall. Through bibliometric analysis, researchers seek to provide: First, an overview of the evolution of research in this field between 2007 and 2023 by showing key Support indicators. Secondly, the results of research visualization make it possible to provide an overview for academics in the future. Third, the results of content analysis also provide an overview of how academic procrastination in higher education.

## 2. METHOD

The type of this research is a literature study with a bibliometric analysis approach. Bibliometric analysis consists of two indicators, namely bibliometric performance indicators and scientific mapping indicators (Akter et al., 2021). Bibliometric performance indicators represent the performance of authors and countries based on the number of article publishers, institutions, citations, average citations, and h-index. Scientific mapping indicators make it possible to provide visualization of keywords obtained from each existing article. The search was conducted on May 07, 2024 from the Scopus database by applying Boolean operators (AND & OR) and truncation (* and reverse comma) in TI, AB, KW: *"academic procrast*"* AND *"higher educat*"* OR *"university"*. The selected research period is since the article was published and indexed by Scopus, namely from 2007-2023, 318 articles were obtained. But then it is limited only to documents in the form of final articles and in English, with the keywords academic procrastination, university students, higher education, university, and universities and according to the criteria of research needs. There were 88 articles that fit the criteria and then became samples in this study.

This research uses quantitative and qualitative analysis (Colás-Bravo & Quintero-Rodríguez, 2022). Quantitative analysis aims to find out information about the year of publication of articles, journals with the highest number of publications, article authors, creator universities, and countries with the highest number of article production on research subjects. In addition, the qualitative analysis aims to find out information about the main trends in the scientific topics raised, VOSviewer software aims to visualize bibliometric networks with clusters of research topics with different colors (Puspita et al., 2023), Obtain keyword suitability with graphical representation, and the relationship between keywords and the year of publication.

## 3. RESULTS AND DISCUSSION

Related scientific research in certain fields is very important to analyze the evolution of literature, identify research trends, and find opportunities for future research. Therefore, in order to obtain good analysis results, this research is divided into two subsections, namely quantitative, descriptive and qualitative content analysis.

### A. Descriptive Quantitative Analysis

1) The Evolution of Scientific Production

The quantity of previous empirical studies on the topic of academic procrastination in higher education published since 2007-2023 can be seen in figure 1 and table 1 which shows that issues related to academic procrastination in higher education continue to increase every year. Figure 1 shows articles published in parallel. The first year saw low article productivity, especially in the second to seventh year no articles were published. 2023 is the most productive year where there are 27 articles published and indexed by Scopus. However, table 1 shows the highest number of cited articles in 2019, which was 286 citations. The number of published articles and the number of citations each year have an inversely proportional relationship. The number of published articles is increasing but the number of cited articles is actually decreasing. These findings are different from the study (Terán-Yépez et al., 2020) that the number of published articles is directly proportional to the number of article citations each year. Furthermore, in table 1 it can be seen that the number of citations, authors, and journals publishing on academic procrastination has increased significantly from 2007 to 2023, although in the early years of this study not many researchers were interested in exploring this field. This increasing condition shows that this field began many researchers who are interested in

conducting research collaborations as an effort to overcome problems in this field.
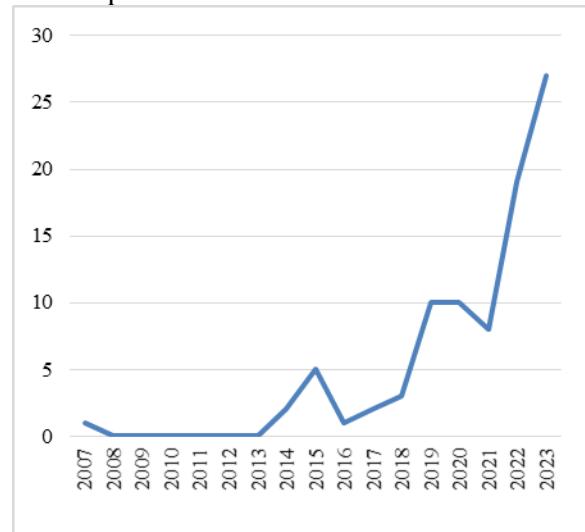


Figure 1. Articles Published by Year in Scopus

Table 1. The Main Characteristics of the Findings of the Article

| Year | No. of article citation per year | No. of authors per year | No. of journal per year |
|------|------|------|------|
| 2007 | 81 | 3 | 1 |
| 2008 | 0 | 0 | 0 |
| 2009 | 0 | 0 | 0 |
| 2010 | 0 | 0 | 0 |
| 2011 | 0 | 0 | 0 |
| 2012 | 0 | 0 | 0 |
| 2013 | 0 | 0 | 0 |
| 2014 | 72 | 6 | 2 |
| 2015 | 52 | 13 | 5 |
| 2016 | 16 | 3 | 1 |
| 2017 | 9 | 4 | 1 |
| 2018 | 72 | 10 | 3 |
| 2019 | 286 | 32 | 8 |
| 2020 | 113 | 37 | 10 |
| 2021 | 66 | 28 | 7 |
| 2022 | 120 | 68 | 13 |
| 2023 | 34 | 103 | 23 |

2) Most Influential Journals, Articles, Authors, and Countries

Other bibliometric indicators are the 5 most productive journals from 2007-2023 shown in table 2. The five most productive journals are also shown the country of publication, number of citations, year of first publication, year of last publication, h-index, and publisher. The International Journal of Environmental Research and Public Health became the most productive journal by publishing scientific articles in

this field as many as 8 articles and 88 citations with an average citation per article of 11. This condition also positions the International Journal of Environmental Research and Public Health as the most productive journal in the top position, and this journal began publishing articles in this field from 2021 to 2023. In the last 3 years, this journal has 29.33 citations every year. However, when viewed from the longest period of publication, Electronic Journal of Research in Educational Psychology is a journal that publishes the issue of academic procrastination in higher education for the first time compared to the other 5 most productive journals. Another interesting thing to note is that articles on this issue began to be published since 2007, but in the last seven years (2017-2023) journals that publish on this issue have become the most productive and most influential journals. This shows that issues on this topic are increasingly urgent. Therefore, to find out how much influence each article has per year, an indicator of average article citations per year seen since the first article was published (C/Y). With regard to this indicator, the International Journal of Environmental Research and Public Health remains the most dominant with 29.33 citations per year, followed by Frontiers in Psychology with 23.7 citations per year, Electronic Journal of Research In Educational Psychology with 7 citations per year, Nursing Open with 5 citations per year, and Frontiers In Education with 3.5 citations per year. Regarding the h-index, the International Journal of Environmental Research And Public Health remains the most dominant at 201 and the lowest among the five most productive journals is the Electronic Journal Of Research In Educational Psychology at 12.

Table 2. Five Most Productive Journals

| No | Journal | Publisher | A | COU | C | C/A | 1st A | Last A | C/Y | h-index |
|----|---------|-----------|---|-----|---|-----|-------|--------|-----|---------|
| 1 | International Journal of Environmental Research and Public Health | Multidisciplinary Digital Publishing Institute (MDPI) | 8 | Switzerland | 88 | 11 | 2021 | 2023 | 29,33 | 201 |
| 2 | Frontiers in Psychology | Frontiers Media SA | 7 | Switzerland | 71 | 10,1 | 2019 | 2023 | 23,7 | 169 |
| 3 | Electronic Journal of Research in Educational Psychology | Universidad de Almeria | 3 | Spain | 14 | 4,6 | 2017 | 2018 | 7 | 12 |
| 4 | Frontiers in Education | Frontiers Media SA | 3 | Switzerland | 7 | 2,3 | 2022 | 2023 | 3,5 | 56 |
| 5 | Nursing Open | Wiley-Blackwell | 3 | USA | 5 | 2,5 | 2023 | 2023 | 5 | 42 |

Desc. A: number of total articles; COU: countries; C: number of citations for all articles; C/A: average citations per articles; 1st A: year of first published article; Last A: year of last published article; C/Y: average number of citations per year since the 1st A.

The next indicator relates to the most influential articles. An article by Zeyang Yang, Kathryn Asbury & Mark D. Griffiths published in the International Journal of Mental Health and Addiction in 2019 entitled *"An Exploration of Problematic Smartphone Use among Chinese University Students: Associations with Academic Anxiety, Academic Procrastination, Self-Regulation and Subjective Wellbeing"* became the most referenced article with 117 citations. The next position of the article *"Correlates of academic procrastination and mathematics achievement of University Undergraduate Students"* by Mojeed Kolawole Akinsola, Adedeji Tella, & Adeyinka Tella in 2007 has cited as many as 81 citations.

Table 3. Articles with the Most Citations

| No | Article | Author | Year | Journal | Citation | h-index |
|----|---------|--------|------|---------|----------|---------|
| 1 | An Exploration of Problematic Smartphone Use among Chinese University Students: Associations with Academic Anxiety, Academic Procrastination, Self-Regulation and Subjective Wellbeing | Zeyang Yang, Kathryn Asbury & Mark D. Griffiths | 2019 | International Journal of Mental Health and Addiction | 117 | 81 |

| 2 | Correlates of academic procrastination and mathematics achievement of university undergraduate students | Mojeed Kolawole Akinsola, Adedeji Tella, Adeyinka Tella | 2007 | Eurasia Journal of Mathematics, Science and Technology Education | 81 | 55 |
|---|---|---|---|---|---|---|
| 3 | Predicting Students' Academic Procrastination in Blended Learning Course Using Homework Submission Data | Akram, Aftab, Chengzhou Fu, Yuyao Li, Muhammad Yaqoob Javed, Ronghua Lin, Yuncheng Jiang, & Yong Tang | 2019 | IEEE Access | 62 | 233 |
| 4 | Evaluating the drivers of and obstacles to the willingness to use cognitive enhancement drugs: The influence of drug characteristics, social environment, and personal characteristics | Sattler, Sebastian, Guido Mehlkop, Peter Graeff, and Carsten Sauer. | 2014 | Substance Abuse: Treatment, Prevention, and Policy | 45 | 34 |
| 5 | Mexican and Spanish university students' Internet addiction and academic procrastination: Correlation and potential factors | Aznar-Díaz, Inmaculada, José-María Romero-Rodríguez, Abel García-González, and María-Soledad Ramírez-Montoya | 2020 | PloS ONE | 43 | 212 |

List of the most productive authors with a minimum provision of 3 articles so that 8 authors who meet the criteria are obtained. The authors with the highest number of articles as well as having the most citations among the other most prolific writers are Markus Dresel & Lisa Bäulke. Both authors are from the same country and affiliation, Universität Augsburg Germany, allowing the two authors to collaborate in this field, which was first published in 2018. In addition, Markus Dresel has articles in various fields that have been cited overall with the highest number of 2,263 citations. Stefan Fries, who comes from an affiliate of Universität Bielefeld Germany, occupies the third position as the most prolific author with 3 articles in this field published from 2018-2021 and has cited 39 citations. Other findings are also found in the research of Pareira, L. C. and Ramos, F. P. (Pereira & Ramos, 2021), the most prolific authors of his research on academic procrastination in higher education are Brito & Bakos, Vargas Ceballos & Santos, and Dominguez-Lara & Sanchez-Elvira-Paniagua. The results of this study are different from Tao et al. (2021) in their research, the most prolific author is June J. Pilcher who has produced as many as 17 articles followed by Murat Balkis and Stefan Fries from Turkey and Germany with 9 articles each. This shows that there are new academics who are interested in the topic of academic procrastination.

Table 4. Most Prolific Writers

| No | Author | A | C | C/A | 1st A | Last A | h-index | NAC | COU | Affiliation |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Markus Dresel | 4 | 74 | 18,5 | 2018 | 2021 | 28 | 2.263 | Germany | Universität Augsburg |
| 2 | Lisa Bäulke | 4 | 74 | 18,5 | 2018 | 2021 | 6 | 121 | Germany | Universität Augsburg |
| 3 | Stefan Fries | 3 | 39 | 13 | 2022 | 2022 | 28 | 2.066 | Germany | Universität Bielefeld |
| 4 | Carola Grunschel | 3 | 39 | 13 | 2022 | 2022 | 14 | 693 | Germany | University of Münster |
| 5 | Oscar Mamani-Benito | 3 | 8 | 2,6 | 2022 | 2023 | 10 | 300 | Peru | Universidad Señor de Sipán |
| 6 | Luis J. Martín-Antón | 3 | 5 | 1,7 | 2022 | 2023 | 13 | 293 | Spain | Universidad de Valladolid |

| 7 | Anne Scheunemann | 3 | 39 | 13 | 2022 | 2022 | 7 | 205 | Germany | Ruhr-Universitat Bochum |
| 8 | Theresa Schnettler | 3 | 39 | 13 | 2022 | 2022 | 6 | 129 | Germany | University of Münster |

Desc. A: number of total articles; C: number of citations for all articles; C/A: average citations per articles; 1ˢᵗ A: year of first published article; Last A: year of last published article; NAC: number of articles cited; COU: country.

The list of the most productive countries based on the results of mapping the distribution of countries with the highest number of articles indexed by Scopus shows that China is the most country with 15 articles. The second and third positions with the same number of 11 articles each are occupied by Peru and Spain. Here are the top 8 most productive countries in publishing articles related to academic procrastination in universities indexed by Scopus.
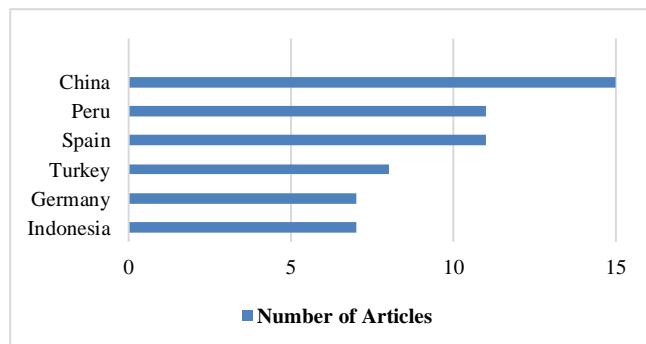


Figure 2. Distribution of Countries with the Most Articles

### B. Content Qualitative Analysis

1) Clustering Research Topics of Academic Procrastination in Higher Education Based on Keywords

Clustering is done by analyzing keywords in each article then processed with VOSViewer so that a scientific network map is formed. The total number of keywords in this research scopus database is 436 keywords. Then researchers set criteria for clustering on keywords that appeared more than 5 times. It found 37 keywords that met the threshold so 4 clusters were formed which can be seen in image 3.

a) Red cluster: relates to the psychological conditions experienced by every student in higher education without age limitation and regardless of gender. This cluster is the largest cluster consisting of 13 keywords, namely adolescent, adult, female, human, humans, male, psychology, questionnaire, student, students, universities, university, young adult.

b) Green cluster: related to the factors that influence the occurrence of procrastination and the approach to research methods used. The green cluster consists of 11 keywords, namely academic achievement, China, college students, controlled study, cross-sectional studies, cross-sectional study, higher education, self-concept, self-efficacy, self-efficacy.

c) Blue cluster: relates to specific forms of procrastination in academics in universities. This cluster consists of 10 keywords, namely academic performance, academic procrastination, academic self-efficacy, article, human experiment, learning, procrastination, team management, university sector, university student.

d) Yellow cluster: mostly discusses the relationship between procrastination as a form of mental health conditions in students during the pandemic. This cluster consists of 3 keywords, namely COVID-19, mental health, university student.
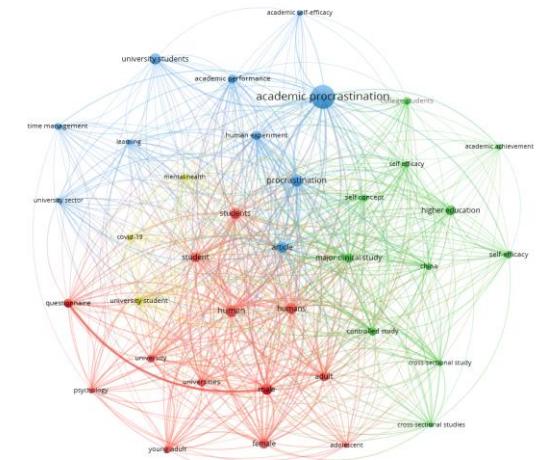


Figure 3. Circle Network Visualization

Next, the trend of mapping publications related to the topic of academic procrastination based on the year of publication using "overlay visualization". The results of "overlay visualization" can be used as a reference in analyzing the "state of the art" in academic procrastination research in universities. The color of the nodes present in each article indicates the year the article was published. The brighter the color of the nodes in each article, the study is the latest research. For example, the keywords university sector,

covid-19, cross-sectional study, self-efficacy, cross-sectional studies, learning, mental health, self-concept are the latest studies published in the 2022-2023 time frame. It is important to note that these latest keywords can be used as research themes to explore further. Finally, *"density visualization analysis"* aims to identify the density of the research theme. Therefore, it can be known that research is still rarely done. The density of research is shown in bright yellow, the darker the color, the less often the research theme is carried out. Research themes related to academic procrastination are classified as bright colors which means that quite a lot of research is done on the topic, but academic procrastination that occurs in higher education or university is still very rarely researched. Therefore, the opportunity to conduct research on the topic of academic procrastination in higher education is an opportunity to fill the research void.
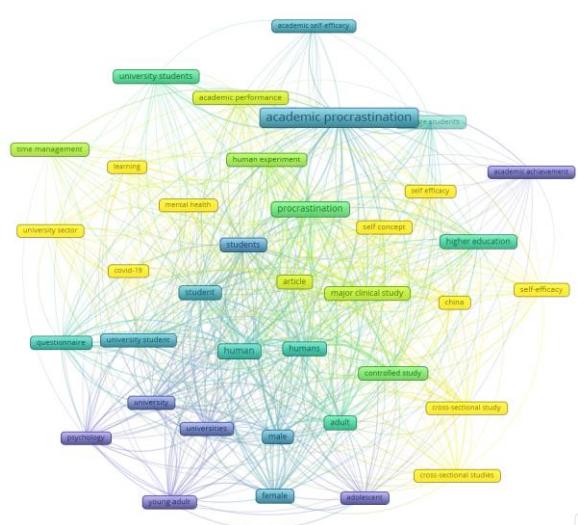


Figure 4. Overlay Visualization
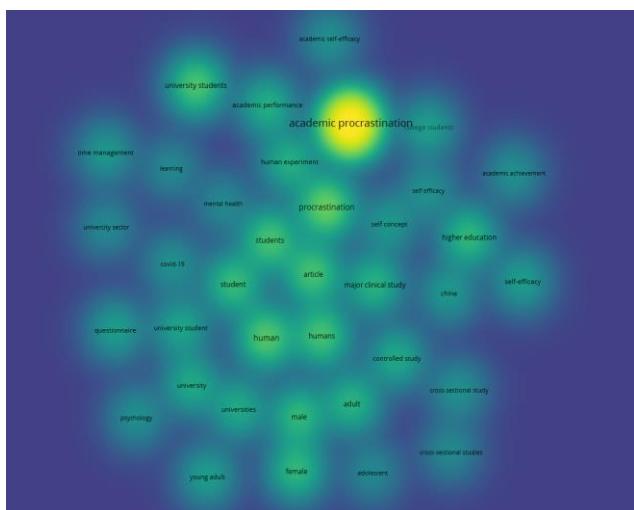


Figure 5. Density Visualization

This research through a bibliometric approach shows research trends in the last seventeen years. Based on the results of the study, figure 5 shows that the keyword *"academic procrastination"* is the most researched and used keyword. Most articles focus on factors and impacts. This finding is in line with trends in factors and impacts resulting from the development of conditions that occur during the pandemic. The correlation of factors [self-efficacy] has a relationship with the formation of academic procrastination attitudes (Malkoç & Kesen Mutlu, 2018). This finding confirms that, in addition to self-efficacy, there are various findings of other factors that have a correlation with the formation of academic procrastination behavior in students. These factors include the influence of [cross-sectional studies] [time management] (Košíková et al., 2019), [anxiety] and [perfectionism] (Rezaei-Gazki et al., 2024). Academic procrastination behavior can occur in college without age limits (Türel & Dokumaci, 2022) and gender (Albursan et al., 2022). In addition, the correlation of the impact caused is [academic achievement] (Martín-Antón et al., 2022) and [mental health].

The appearance of metadata and the results of analysis using VOSViewer obtained information on research trends related to the issue of academic procrastination in universities at 2007-2023. The findings present potential future research opportunities, making it possible to explore further. [College student] is one of the keywords displayed in the VOSViewer analysis results. [College student] which refers to student in [university] or [university] also has a correlation with academic procrastination behavior or procrastination attitude in completing academic tasks. However, the visualization findings show that [covid-19], [psychology], [mental health] have the potential to be explored more deeply because there is still a lack of research that examines these subjects.

## 4. CONSLUSION

Based on an analysis show that between 2007 to 2023 articles on academic procrastination in higher education in the scopus database and the most article publications are 27 articles in 2023. The results of the analysis show that several factors cause the formation of academic procrastination behavior: self-efficacy, cross-sectional studies, time management, anxiety, and perfectionism and have an impact on academic achievement and mental health. Based on the findings obtained, several suggestions can be formulated that researchers convey for future research: i) this study

only contains 88 articles filtered based on specified criteria; ii) this study only discusses academic procrastination in universities, perhaps it will be broader if the next researcher examines academic procrastination at the formal education level; iii) This research uses the literature study method with a bibliometric approach, in previous research many articles have used field research methods, so for the next researcher it is recommended to conduct research in this field using the meta-analysis method. Our dataset has some limitations. First, only use documents in English and documents that meet several criteria for research needs. Second, the documents used are only documents issued between 2007 and 2023. Third, only use documents that discuss research topics with a sample of university students. The researcher suggested that for the next research on this topic, it can explore more deeply and broadly the range of samples at various levels of education, besides that it is also suggested to be able to fill the gaps in the research to study using the meta-analysis approach method.

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