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BIBLIOMETRIC ANALYSIS: LECTURERS' RESEARCH PERFORMANCE

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ABSTRACT

The research performance of lecturers is very important for several reasons, both in terms of the development of higher education institutions and the broader contributions to society and scientific knowledge. This study aims to identify research trends related to lecturers' research performance from 2019 to 2024. To achieve this goal, a literature review method was used, employing bibliometric analysis with VOSviewer software. In this study, the applied method is a quantitative approach using bibliometric analysis. As a data source, 644 scientific publications from the ScienceDirect database were used, selected through a search with the keyword "lecturers' research performance." The results of this study indicate that the trends in lecturers' research performance encompass topics such as higher education, artificial intelligence, education, academic performance, teacher education, Covid-19, sustainability, and motivation. Therefore, future research is suggested to investigate keywords such as gender, employability, formative assessment, self-efficacy, and collaboration.

Keywords: Lecturers' Research Performance, Bibliometric Analysis, ScienceDirect, VOSviewer.

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INTRODUCTION

One of the primary duties of lecturers is to implement the Tri Dharma of Higher Education, which includes conducting research. Lecturers can conduct research independently or in groups with funding from personal funds, internal university funds, or government grants. After completing the research, lecturers are required to publish the results in the form of journals, seminar proceedings, intellectual property rights (IPR), or other outputs (Sumiyatun & Subiyantoro, 2023). Lecturer research performance is measured by the effectiveness and outcomes of the research conducted, including the number and quality of publications in accredited scientific journals or peer-reviewed proceedings, successful acquisition of research grants from funding agencies, significant contributions to the advancement of knowledge, and the tangible impact of the research on society. Other factors, such as collaboration with other researchers and the integration of research results into teaching and student supervision, are also important indicators in assessing lecturers' research performance, influencing academic career development, and enhancing the quality of higher education and scientific research. High-quality research can enhance the reputation of the university and positively impact the development of science and technology (Haryanto et al., 2023).

A literature review is necessary to gain a more comprehensive understanding of lecturers' research performance, enabling us to gather more information on the factors influencing their research performance in supporting quality higher education institutions. Bibliometric analysis aims to evaluate scientific research outcomes, map scientific fields, and trace the development of new knowledge in specific areas. The diversity of information sources requires accurate mapping to analyze research topics or studies. In this regard, bibliometric studies play a role in identifying trends and knowledge development across various disciplines, as well as organizing the flow of information and communication (Perkasa, Erwina, & Kusnandar, 2022).

One popular method in literature studies is bibliometric analysis, which is a mathematical and statistical analysis of publication patterns, using metadata from journals as the unit of analysis (Suntoro & Setyaningsih, 2022). Bibliometrics combines statistical and mathematical methods to analyze and measure the quality and quantity of publications, such as books and articles. In bibliometric network analysis, researchers often use mapping and clustering techniques simultaneously. Although these techniques are often combined, they are based on very different ideas and assumptions. An integrated approach to mapping and clustering in bibliometric networks demonstrates the application of VOS mapping techniques (Effendy, Gaffar, Hurriyati, & Hendrayati, 2021). In this study, researchers mapped the trends in lecturers' research performance using VOSviewer software.

Based on previous research, the theme of lecturers' research performance encompasses a wide and diverse range of topics. This article aims to identify the types of research that have been conducted to avoid duplication of efforts. This study is expected to map the relationships between keywords in studies of lecturers' research performance and to identify current research trends in this area. From the results, we can identify popular topics. Additionally, this review aims to discover innovations and gaps in the research, providing insights into topics that remain relevant for further investigation.

LITERATURE REVIEW

Lecturers' research performance involves completing research-related tasks assigned according to their job requirements. This performance is evaluated by measuring the outcomes of their research activities over a specified period, such as each semester, to meet the requirements related to their positions (Oviyanti, Manizar, & Nurulita, 2018). Ideally, university lecturers should have high levels of productivity and research quality. They must understand the importance of research as a primary duty and appreciate its contribution to the advancement of knowledge and

societal progress. A lecturer is expected to have a deep understanding of the importance of research, adequate access to resources, sufficient time, and strong financial support (Haryanto et al., 2023).

Bibliometrics can help examine and visualize research collaboration networks and emerging trends in a particular field (Wahjudi et al., 2024). Bibliometric analysis is a quantitative technique used to analyze bibliographic data found in articles or journals. This method is generally used to investigate references cited in scientific articles, map the scientific fields of a journal, and group scientific articles based on specific research areas (Effendy et al., 2021). According to Glänzel (Nazara, Fitriana, & Santoso, 2024), there are three main components in bibliometrics: a) bibliometrics for bibliometricians, which is the main domain of bibliometric research and traditionally used as a research methodology; b) bibliometrics for scientific disciplines (scientific information), where scientifically-oriented researchers have a strong interest in their fields of expertise, facilitating collaboration with quantitative research in information retrieval; and c) bibliometrics for science policy and management (science policy), which is the domain of research evaluation across various research topics for scientific policy and management. When bibliometric methods are applied to the assessment of a scientific journal, information about the journal's quality, maturity, and productivity can be obtained (Setiakarnawijaya & Fadhli, 2023).

ScienceDirect is a product of Elsevier that provides scientific information resources. It has established several licensing criteria tailored to customer needs, including: a) the scope of subscribed article content; b) the format of ownership licenses for subscribed collections, whether in print or electronic form; c) the level of functionality; and d) archive usage rights (Sukirno, Mukhotib, & Purwandari, 2018). As a leading international scientific database, ScienceDirect offers full-text scientific information from over 2,500 peer-reviewed journals and 1,000 books. Currently, the database contains more than 11 million articles and chapters, with content increasing by approximately 0.5 million each year. Part of Elsevier, the world's largest provider of scientific, technical, and medical information, ScienceDirect provides information on its website about content coverage, offered products, purchase options, access policies, and benefits for users such as librarians and researchers (Nashihuddin & Rahayu, 2013).

VOSViewer is a computer program designed to develop and display bibliometric maps, providing text-mining features useful for building and visualizing networks or correlations in article or publication citations (Nazara et al., 2024). Also known as VV, VOSViewer is software used to visualize bibliometric maps or datasets covering bibliographic fields such as titles, authors, journals, and more. In the context of research, VV is used to conduct bibliometric analysis, map current research topics, and identify frequently used references in a particular field. VV can read datasets from various online journal sites (Karim, Soebagyo, Nuranti, & Uljanah, 2022).

METHODOLOGY

This study utilizes a quantitative descriptive method with a bibliometric approach, which involves mathematical and statistical methods to examine patterns of material usage and analyze the development of specific literature, particularly concerning authorship, publication, and usage (Setiakarnawijaya & Fadhli, 2023). In this research, bibliometric analysis is applied to investigate publications related to lecturers' research performance. The objective is to identify research trends, key concepts, and relevant keywords through bibliometric mapping. The study gathers publication data on lecturers' research performance from 2019 to 2024 sourced from the database <https://www.sciencedirect.com/>. Data retrieval involves using the keyword "lecturer research performance." The evolution of publication trends is analyzed using VosViewer software.

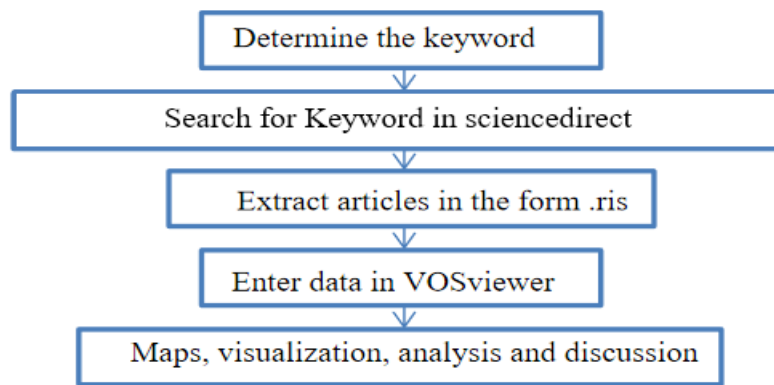


Figure 1. Research Stage (Farida & Tambunan, 2023)

RESULT AND DISCUSSION

The search results in the ScienceDirect database, filtered by article type (research articles), subject areas (social sciences), language (English), and access type (open access and open archive), indicate a consistent increase in the number of research articles on the topic of lecturers' research performance from 2018 to 2023, with a slight decrease noted in 2019. This trend can be observed in Table 1 and Figure 2.

Table 1
Number of Publications Over the Years

Tahun	Jumlah
2023	234
2022	167
2021	123
2020	56
2019	29
2018	35
Total	644

Source: ScienceDirect

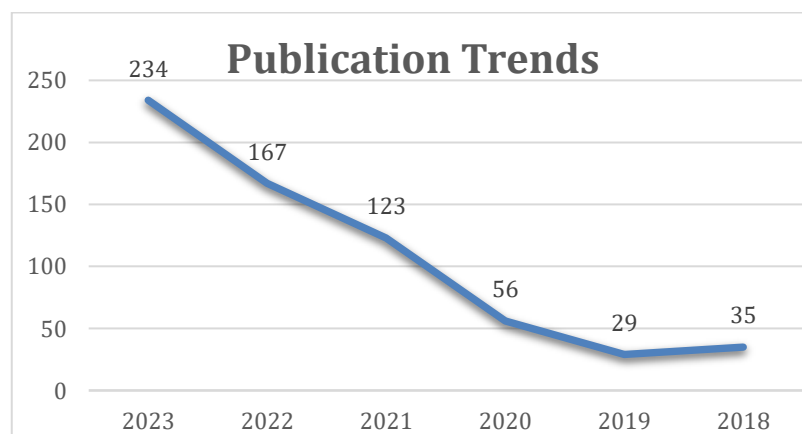


Figure 2. Publication Trends

Table 1 and Figure 2 illustrate the trend in the number of research publications on lecturers' research performance from 2018 to 2023. There is a general increase in publications each year,

with a slight decrease noted in 2019. The year 2023 had the highest number of publications, while 2019 had the lowest.

Based on the information obtained from scientific articles, computational mapping analysis was conducted using the VOSViewer program. This analysis resulted in 36 keywords grouped into 6 clusters, each related to lecturers' research performance. Cluster 1, marked in red, contains 8 items, including artificial intelligence, e-learning, education, formative assessment, learning, teacher professional development, technology, and technology adoption. Cluster 2, marked in green, includes 8 items such as blended learning, COVID-19, employability, gender, pandemic, self-efficacy, sustainability, and university. Cluster 3, marked in dark blue, consists of 6 items, including COVID-19 pandemic, higher education, online learning, social media, and teaching and learning. Cluster 4, marked in yellow, contains 6 items, including collaboration, collaborative learning, nursing education, nursing students, performance, and qualitative research. Cluster 5, marked in purple, comprises 5 items such as engagement, motivation, professional development, teacher education, and teachers. Cluster 6, marked in light blue, includes 3 items: academic performance, gamification, and students.

The relationship between items within each cluster is depicted by colored circles representing the label of each term. The size of the circles varies based on the frequency of appearance of the term, with larger sizes indicating more frequent appearance in titles and abstracts, indicating a positive correlation between the size of the circles and the frequency of term occurrence (Lestari, Josephine, & Nuryadin, 2023). This study adopts three types of mapping visualization for analysis: network visualization, density visualization, and overlay visualization.

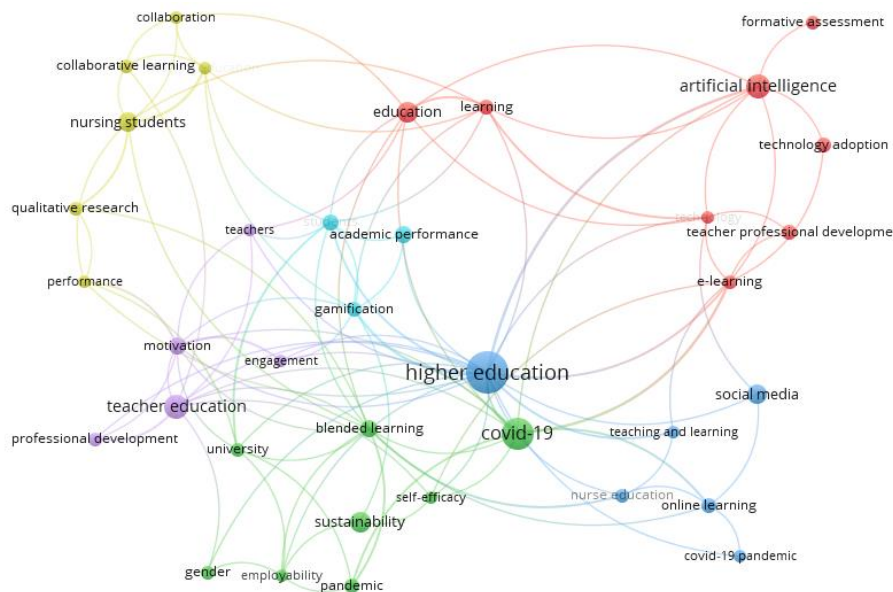


Figure 3. Network Visualization “Lecturer Research Performance”

Data indicates that there have been numerous studies on lecturer research performance covering various topics such as higher education, artificial intelligence, education, academic performance, teacher education, COVID-19, sustainability, and motivation. For future research, it is recommended to explore less-studied topics, such as competency and organizational culture. By utilizing these topics, new research on lecturer research performance can be conducted.

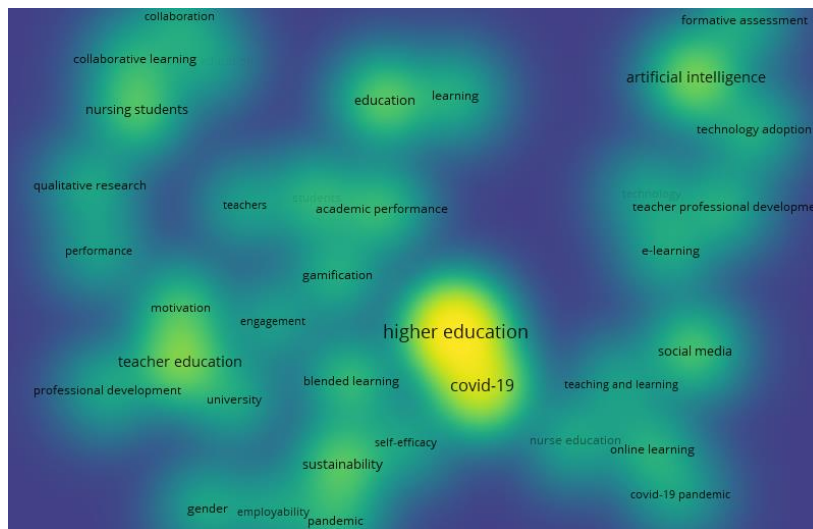


Figure 4. Density Visualization “Lecturer Research Performance”

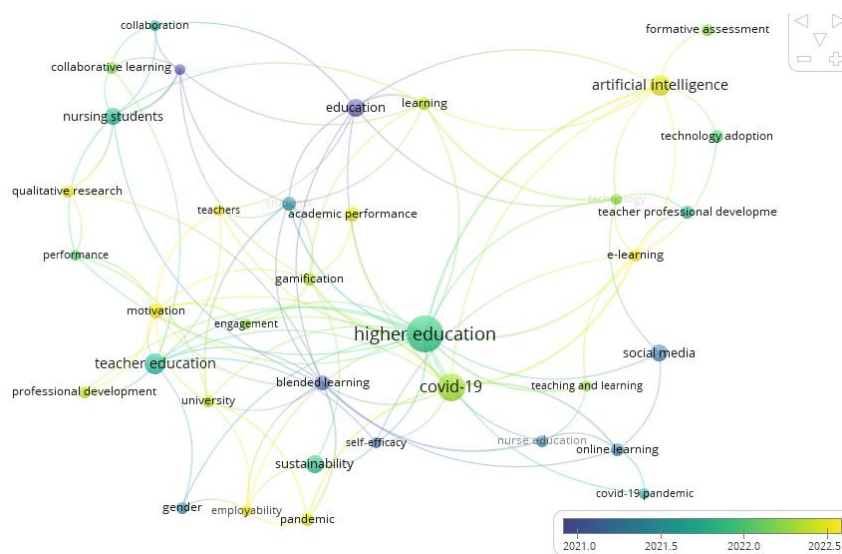


Figure 5. Overlay Visualization “Lecturer Research Performance”

The opportunities for future research that incorporate innovative elements in the topic of lecturer research performance can be identified through Figure 4 and Figure 5. In these visualizations, brighter areas, such as yellow, indicate the frequency of keyword usage, while darker areas suggest that the keywords are less frequently used. In this context, "higher education" appears as the most frequently used keyword, followed by several others. The potential for future research may lie in the utilization of less-explored keywords, such as gender, employability, formative assessment, self-efficacy, and collaboration, which are still underexplored.

CONCLUSION

His study examines the ScienceDirect database to understand trends in lecturer research performance, utilizing quantitative descriptive analysis with a bibliometric approach. Vosviewer is applied to analyze data and visualize the necessary information. The results indicate an increase in publications on lecturer research performance from 2018 to 2023, with a decline noted in 2019. Network visualization analysis shows that research trends over the past six years cover topics such as higher education, artificial intelligence, education, academic performance, teacher education, COVID-19, sustainability, and motivation. Therefore, current research of interest to researchers in

the field of lecturer research performance focuses on less-explored keywords such as gender, employability, formative assessment, self-efficacy, and collaboration.

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