Trends in Educational Professional Development Research in Indonesia from 2015 to 2024: A Bibliometric Analysis

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ABSTRACT

This study discusses the significant growth of research on the educational profession in Indonesia from 2015 to May 2024. Bibliometric analysis is employed to examine publication trends, author collaborations, and research institution contributions to knowledge production in this field. Data were obtained from articles downloaded from dimensions.ai using the keywords "Educational Profession, Education Profession, & Educational Profession," with a total of 6790 articles analyzed. Results indicate a consistent increase in the number of publications over the period, with OSF Preprints and INA-Rxiv as the main platforms for publication. The largest contributions come from Universitas Padjadjaran and Universitas Airlangga. The analysis of themes, trends, and keywords highlights a strong interest in research on the teaching profession, focusing on learning methodologies and the PPG (Professional Teacher Education) programs. However, there are limitations in researcher linkages, indicating the need for increased collaboration among researchers. Citation analysis of authors, countries, journals, and organizations elucidates the collaboration and recognition within the research community. While some researchers have high citation counts, a number of them exhibit low interconnectedness with other research communities. In conclusion, this study provides an in-depth understanding of the dynamics of educational profession research in Indonesia, offering guidance for researchers, practitioners, and policymakers to identify future research trends, needs, and opportunities and strengthen researcher collaboration.

Keywords: Research Trends, Educational Profession, Bibliometrics, Collaboration, Indonesia

INTRODUCTION

Bibliometrics is a form of research that combines traditional bibliographic methods to analyze information from published materials with quantitative techniques to measure the impact of these publications (Han et al., 2020). Bibliometric analysis involves mapping research trends using the analysis and processing of Metadata (Putri et al., 2022). It is also a valuable tool for tracing the intellectual structure within a specific research field. (Bigliardi & Filippelli, 2022). Bibliometric techniques are used to understand the structure of the field, social networks, research trends, and themes. This involves various metrics, such as counting publications and citations, as well as employing advanced algorithms to analyze the data (Liu, 2022).

Bibliometric research is a study based on the review of thousands or even tens of thousands of articles through their Metadata. In this process, Metadata from each article, such as titles, abstracts, keywords, authors, and references, are collected and analyzed to identify patterns, trends, and relationships in a specific research field. By using various analytical tools and techniques, researchers can evaluate the impact and influence of particular publications, identify collaboration networks among researchers, and map the development and evolution of research themes. Through this approach, bibliometric research provides deep and comprehensive insights into scientific dynamics, aids in strategic decision-making, and offers direction for future research (Öztürk et al., 2024).

The role of teachers and other educational personnel is a key factor in determining a country's education quality. In Indonesia, the development of the educational profession has become a primary focus in efforts to enhance the quality of national education (Mustofa, 2012). Various policies and programs have been implemented to support the enhancement of teacher capacity and professionalism, including training, certification, and continuous development. Along with the advancement of technology and changing educational needs, research on the development of the educational profession continues to evolve. This study focuses on improving technical skills and aspects such as pedagogical competence, classroom management, the use of technology in learning, and performance enhancement through evaluation and feedback.

However, there have been few comprehensive studies analyzing research trends in this field, particularly in the context of Indonesia. Bibliometric analysis can provide a clear overview of the development and direction of research in the educational profession over recent years (Gunawan et al., 2023). This method enables researchers to identify the most frequently researched topics, collaboration patterns, and the impact of the research conducted.

This article aims to fill this gap by analyzing research trends in the development of the educational profession in Indonesia from 2015 to 2024. By using bibliometric analysis, this study examined various relevant academic publications to identify key patterns and trends, including focus areas, research methods used, and the contributions of the research to educational practice in Indonesia.

The results of this analysis are expected to provide valuable insights for researchers, practitioners, and policymakers in formulating more effective and evidence-based strategies for the development of the educational profession. Additionally, these findings can serve as a foundation for future research, helping to direct resources and efforts towards areas that most need concern. The applications used by researchers include Dimension.ai as a reference manager to obtain Metadata from journals discussing the educational profession, VOSviewer to visualize research trends, and Power BI Desktop to map the distribution of research documents across Indonesia.

MATERIALS & METHODS
Data Collection and Analysis
The bibliometric search was conducted online using the application dimensions.ai for articles published in various journals in Indonesia from 2015 to 2024, with a total of 6790 articles identified through dimensions.ai. The search was refined using the keywords "Profesi Kependidikan," "Education Profession," and "Educational Profession." Subsequently, the articles were searched using dimensions.ai. A total of 6790 articles will be analyzed. The application VOSviewer 1.6.19 was used for science mapping and network analysis of the obtained articles. The basic steps of bibliometric analysis include performance analysis, science mapping, and network analysis, which are conducted to draw conclusions and recommendations.

Data Inclusion and Exclusion Criteria
Articles were selected based on titles relevant to the educational profession, including articles in both English and Indonesian.

Data Analysis
The dataset was collected in BibTeX and CSV formats from the dimensions.ai site. This process began by determining the specific journals that would be the focus of the research. Once these journals were selected, searches were conducted on the dimensions.ai platform to find and collect relevant Metadata. This Metadata, including titles, authors, abstracts, and references, was subsequently exported into BibTeX and CSV formats for further analysis.

RESULT AND DISCUSSION
Trend Analysis of Publication Increase from 2015 – 2024

A total of 6790 relevant articles were downloaded with their Metadata obtained through a search on dimensions.ai using the keywords "Profesi Kependidikan" or "Education Profession" or "Educational Profession." All downloaded metadata consisted of scientific articles. The data analysis process was conducted using VOSviewer software version 1.6.19, developed by Nees Jan Van Eck and Ludo Waltman. This study involved examining aspects such as author collaboration, co-occurrence, and co-citation among documents, authors, organizations, countries, and productive journals. Additionally, analysis was conducted on the themes, topics, abstracts, and keywords from the publication data sources. Based on the Metadata, a total of 3266 journals have published articles on the topic of the educational profession. Of these 3266 journals, the 20 journals with the most published articles are listed in Table 1.

Table 1. List of 20 Journals with the Highest Number of Publications on "Profesi Kependidikan" (Educational Profession)

Journal Name	Abbreviation	Number of Articles
OSF Preprints	OSF Preprints	725
INA-Rxiv	INA-Rxiv	249
Profesi (Profesional Islam) Media Publikasi Penelitian	PPIMPP	82
E-Jurnal Akuntansi	EJA	30
E-Jurnal Medika Udayana	EJMU	26
BALANCE JOURNAL OF ISLAMIC ACCOUNTING	BJIA	24
JIIP - Jurnal Ilmiah Ilmu Pendidikan	JIIP	23
Prosiding Penelitian dan Pengabdian kepada Masyarakat	P3KM	23
Ekuitas: Jurnal Ekonomi dan Keuangan	EJEK	18
JOURNAL OF Public Health Concerns	JPHC	18
Jurnal Etika Kedokteran Indonesia	JEKI	18
Syntax Literate Jurnal Ilmiah Indonesia	SLJII	17
Jurnal Administrasi Pendidikan	JAP	14
Jurnal EMPATI	JE	14
e-GIGI	e-GIGI	13
Jurnal Liabilitas	JL	13
Jurnal Pendidikan dan Pengabdian Masyarakat	JPPM	13
Jurnal Sekretari Universitas Pamulang	JSUP	12
NOTARIUS	NOT	12
Prosiding Temu Ilmiah IPLBI 2021: Strategi Pengembangan Wilayah Perkotaan Dalam Mewujudkan Pembangunan Berkelanjutan	PTIIPLBI 2021	12

Table 1 provides an intriguing overview of the distribution of scientific articles across various journals. Based on the presented data, it is evident that OSF Preprints is the journal with the highest number of articles, reaching 725 articles. This indicates that this

platform is one of the primary choices for researchers when publishing their research findings. OSF (Open Science Framework) Preprint is a form of publication using OSF preprint as the publisher. Additionally, the journal INA-Rxiv has a significant number of articles, totaling 249, indicating that it is also an important publication source. Both OSF Preprint and INA-Rxiv are legal publishers, and the authors hold the copyright to the articles. Moreover, they can also obtain a DOI (Document Object Identifier). On the other hand, some other journals, such as the Journal of Educational Administration and the EMPATI Journal,

have lower article numbers, either due to their more specific focus or stricter acceptance criteria. Furthermore, the existence of several journals with the same number of articles, such as the Journal of Pendidikan dan Pengabdian Masyarakat and the Liability Journal, both having 13 articles, suggests that some journals may have comparable reputations and popularity in receiving research contributions. The comparison of each journal or publisher to the highest number of articles on the topic of "Profesi Kependidikan" can be seen in Figure 1.
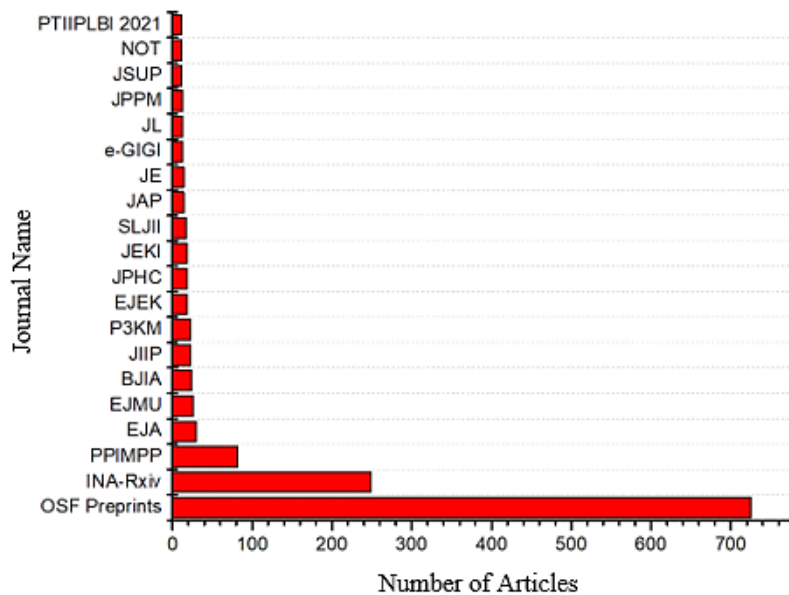

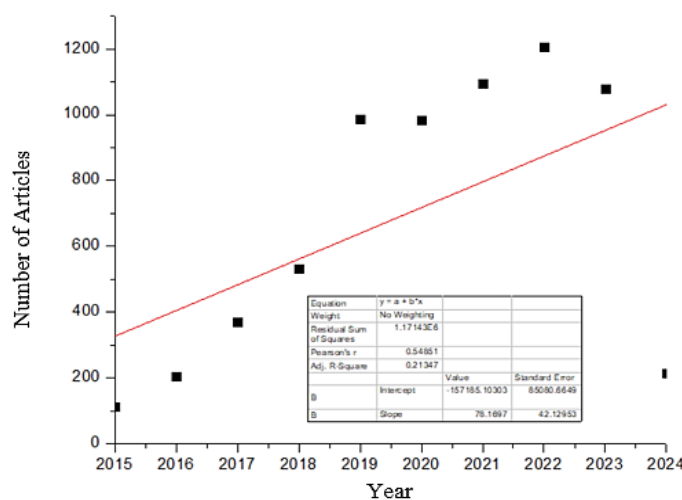**Figure 1. Journal graph based on the number of documents published from 2015 to May 2024**

Figure 2. Graph of the Increase in the Number of Publications in the Field of Educational Profession in Indonesia from 2015 to May 2024

The metadata collection on dimensions.ai was limited to 2015 to May 2024. According to Figure 2, based on linear regression, there has been an increase in the number of publications. This is due to the growing awareness among many researchers about publishing their research findings.

A significant increase in the number of publications began in 2019 and continued to rise until 2022. In 2023, there was a slight decrease, but it remained within a reasonable range. The increase in the number of publications is driven by the ongoing interest in developing the profession of educators and educational staff, which remains an appealing theme for researchers in Indonesia. Among the 6790 articles obtained in the Metadata, 884 institutions/universities/organizations are represented by the authors. The 20 institutions/universities with the highest number of published articles can be seen in Figure 3.
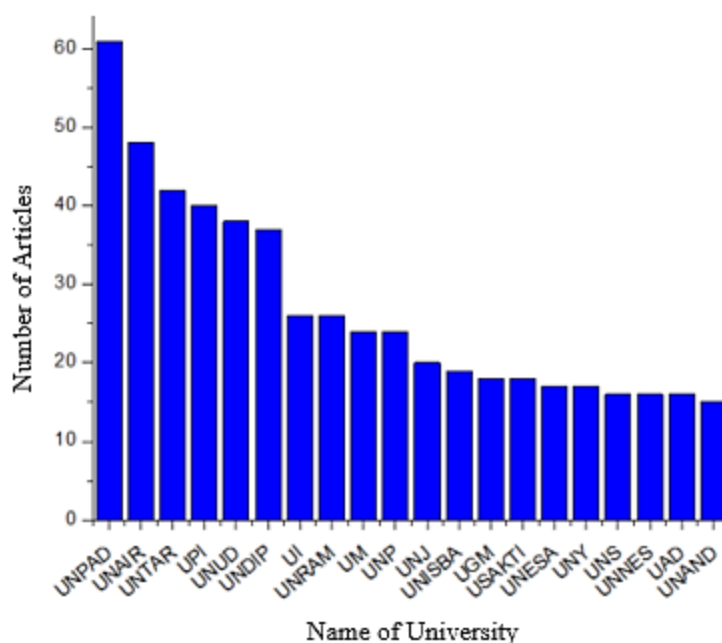

Figure 3. Graph of the Number of Articles from the 20 Universities with the Most Publications

Figure 3 provides an intriguing overview of the article contributions from various institutions or universities. Universitas Padjadjaran stands out as the most active institution in terms of article publication, with a total of 61 articles, indicating a high level of involvement and contribution to research activities. Meanwhile, Universitas Airlangga and Universitas Tarumanagara also contribute significantly, with 48 and 42 articles, respectively. This reflects an active and productive research community at both universities. Additionally, several other universities have made substantial contributions, such as Universitas Pendidikan Indonesia, Universitas Udayana, and Universitas Diponegoro, each having over 30 articles. However, some universities also have lower contributions, possibly due to a more specific research focus. This data provides a useful picture of research activities at various universities, which can aid in understanding the research dynamics at the institutional level.

Bibliometric Analysis of Themes, Trends, and Keywords

The co-occurrence map based on text data from VOSviewer reveals five research clusters over time. The red cluster includes terms such as teacher, method, and cycle. The green cluster includes terms such as profession, PPG program, and learner. The purple cluster covers terms such as

characteristics, age. Similar groups are found in the yellow cluster, which includes law, regulation, legal service. The blue cluster comprises terms such as study, university, and sampling.

The co-occurrence map from titles and abstracts (Figure 4) indicates that the research field concerning the teaching profession is the most discussed.

Figure 4. Bibliometric Analysis of Co-occurrence of Keywords in Titles and Abstracts from 6790 Articles on the Topic of Educational Profession.
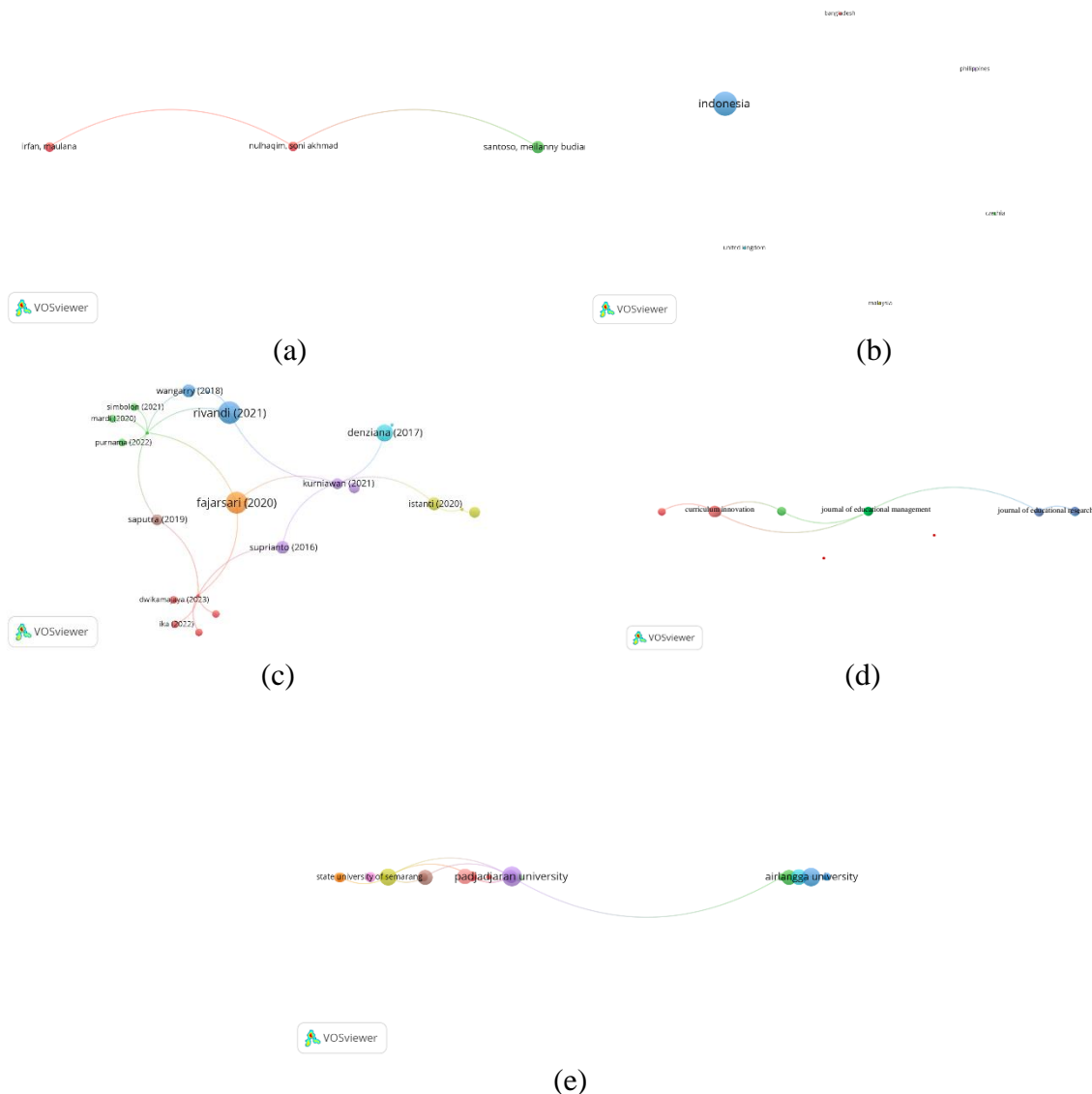
The size of the nodes indicates the frequency of their occurrence. Curves between nodes represent co-occurrence within the same publication. The shorter the distance between two nodes, the greater the number of occurrences of both keywords.

Bibliometric Analysis of Citations
In the citation analysis of authors (Figure 5a), out of 12,778 authors, the author with the highest number of citations is Supriyadi, with 29 citations and 6 documents, but a total link strength of 0. Following Supriyadi, Vladimira Spilcova has a total of 24 citations with 7 documents, and Meilanny Budiarti Santoso has 13 citations with 8 documents. Despite their high citation counts, their total link strength is zero (0), indicating that these three researchers do not have connections with other researchers. Based on the number of documents, Oasenea Melliany has the most documents, totaling 20, but with 0 citations and a total link strength of 0. The author with the highest total link strength is Soni Akhmad Nulhaqim, with a total link strength of 2. This indicates that Soni Akhmad Nulhaqim collaborates with other researchers in the field of education profession. Soni Akhmad has published 5 documents with 4 citations.

In the citation analysis of countries, Indonesia has the highest node. This is due to the focus on journals primarily published by Indonesian journals (Figure 5b). For the document citation analysis (Figure 5c), among the 6790 documents studied, clusters were formed in the VOSviewer visualization results. The document citation analysis shows that the top-ranking articles are by Supriyadi (2017) with 29 citations, Putri (2017a) with 27 citations, and Isnawati (2020) with 23 citations. Based on the source citation analysis (Figure 5d), among the 6790 articles studied, the journal Profesi (Profesional Islam): Media Publikasi Penelitian has the highest citations, with 110 citations from 82 documents and a total link strength of 0. This is followed by the journal "e-Jurnal Akuntansi" with 59 citations from 30 documents and a total link strength of 2, and the journal "OSF Preprints" with 33 citations from 725 documents. For the organization citation analysis (Figure 5e), Universitas Padjadjaran has the highest number of citations, with 93 citations from 69 documents and a total link strength of 1. This is followed by Universitas Negeri Padang with 85 citations and a total link strength of 9, and Universitas Pendidikan

Indonesia with 82 citations from 50 documents and a total link strength of 6.

(a)

(b)

(c)

(d)

(e)

Figure 5. Bibliometric Analysis of: (a) Citation vs. Authors, (b) Citation vs. Countries, (c) Citation vs Documents, (d) Citation vs. Sources, and (e) Citation vs. Organizations

CONCLUSION

This study shows a significant growth in research on the educational profession in Indonesia from 2015 to May 2024. An analysis of the trend in the increase in the number of publications found a consistent rise in the number of published articles, indicating an increasing awareness among researchers to disseminate their research findings. The journals OSF Preprints and INA-Rxiv are prominent as the main platforms for publication, while several universities, such as Universitas Padjadjaran and Universitas Airlangga, show significant contributions to research with a high number of articles.

The bibliometric analysis of themes, trends, and keywords highlights a strong interest in research on the teaching profession, primarily focusing on teaching methodologies and Teacher Professional Education (PPG) programs. This reflects the evolving challenges and needs in improving the quality of education in Indonesia. The citation analysis of authors, countries, journals, and organizations reveals the structure of collaboration and recognition within the research community. Although

some researchers have a high number of citations, there are also limitations in their connectivity with other research communities, indicating a need for more collaboration among researchers.

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