

Optimizing the Role of Teachers in Encouraging Technological Literacy in Islamic Boarding Schools

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Abstract

This study explores the Optimization of the Teacher's Role in Driving Technological Literacy in Islamic Boarding Schools (Pesantren) from 2017 to 2023 using a bibliometric approach. The primary objective of this analysis is to identify, analyze, and summarize literature related to this topic published in national journals. Through the use of bibliometric methods, this research successfully unveiled crucial trends in technological literacy research within the context of Islamic boarding schools.

The overlay visualization analysis illustrates a significant increase in the number of publications each year from 2017 to 2023, highlighting the growing interest in this topic. Meanwhile, density visualization confirms that technological literacy, the teacher's role, and the role of Islamic boarding schools are the primary focuses of this research. This reflects a heightened concern for improving the quality of education in Islamic boarding schools, especially in response to technological advancements.

Several notable citations from related journals include discussions on the effectiveness of online learning, the relevance of Islamic education in the 4.0 era, thematic learning approaches oriented toward scientific literacy, enhancement of digital literacy through e-learning, analysis of literacy culture development, the role of Islamic boarding schools in the era of the 4.0 industrial revolution, and technological innovations in the context of education.

In order to comprehensively understand this issue, this study underscores the importance of developing the teacher's role in facilitating technological literacy within the Islamic boarding school environment, aligning with the necessity for technology integration within a broader educational context.

Keywords: Bibliometric Analysis, Education, Technological Literacy, Teacher, Islamic Boarding School

1. Introduction

Education in the Islamic boarding school environment has been the main focus in improving the quality of education, especially currently regarding technological literacy and the role of teachers in the learning process. In the midst of the Industrial Revolution 4.0, where technology has become an important element in everyday life, the application of technology and increasing literacy are important in preparing adaptive and responsive education.

This bibliometric research aims to explore trends and patterns of studies related to technological literacy, the role of teachers, and Islamic boarding schools in the period 2017 to 2023. Using a bibliometric approach, this research seeks to identify developments, focuses, and trends related to efforts to improve the quality of education in Islamic boarding schools through the use of technology. and the important role of teachers.

Through bibliometric analysis, this research will explore crucial aspects including learning, the existence of Islamic education in the 4.0 era, and technological innovation in the learning context. There has been a significant increase in scientific publications reflecting the growing interest in this topic over the years.

The main aim of this research is to provide a comprehensive overview of the development of Islamic boarding school education regarding technological literacy and the role of teachers. Through a bibliometric approach, this research focuses on understanding current trends, research focus, and developments occurring in the field.

2. Method

In this research, the approach used is bibliometric analysis, which refers to the analysis of a database of articles published in national journals discussing the topic of Optimizing the Role of Teachers in Encouraging Technological Literacy in Islamic Boarding Schools. This method aims to identify, analyze and summarize relevant literature in the domain with the aim of providing a comprehensive picture of developments and trends in the research. The description of the research stages is as follows:

- i. First stage: National publication data is taken from the Google Scholar database from 2017 to 2023 with the help of publish or perish. The keywords used in data collection are technological literacy, teacher, Islamic boarding school.
- ii. Second Stage: Data Selection is carried out to obtain data that meets the criteria, namely publications in the form of journal articles and have been cited. Based on these criteria, 498 papers were obtained.
- iii. (iii) Third stage: data analysis is carried out using VOSviewer to see the following three things: *network visualization*, *overlay visualization*, and *density visualization*

2.1 Data Preparation

Optimizing the Role of Teachers in Encouraging Technological Literacy in Islamic Boarding Schools with bibliometric research taking publication data from the Google Scholar database from 2017 to 2023 using related keywords such as "technological literacy," "teacher," "Islamic boarding school." Use tools such as "Publish or Perish" to facilitate journal article data retrieval. After that, data selection was carried out to obtain journal articles that met the criteria, such as articles that had been cited and published in national journals and from all these criteria, 498 papers were obtained that were relevant to the topic being researched. Next, data analysis was carried out using VOSviewer, VOSviewer was used to carry out bibliometric data analysis with the aim of seeing patterns and trends in related articles. Analysis includes identification of citation patterns, interrelationships

between keywords, and visualization of networks between authors or institutions involved in the research.

2.2 Preprocessing

After collecting 498 papers from Google Scholar using publish or perish based on the keywords technological literacy, teachers, and Islamic boarding schools between 2017 and 2023, pre-processing steps were carried out on the dataset obtained. This process includes selecting data from Google Scholar which only has the year of publication, in order to identify research methods that are relevant to the desired and appropriate keywords. Next, data collection was carried out into Excel to record and adjust interests based on technological literacy, teachers, Islamic boarding schools. This processed data will form the basis for more in-depth bibliometric analysis using tools such as VOSviewer to visualize patterns and relationships between topics from related articles.

3. Results and Analysis

3.1 Research result

The research results presented through three visualization methods - network visualization, overlay visualization, and density visualization - provide a deep understanding of the dynamics and focus of research related to Optimizing the Role of Teachers in Encouraging Technological Literacy in Islamic Boarding Schools. Network visualization analysis describes the pattern of relationships between concepts or elements in the research. In this context, the strength of the relationship between related concepts such as technology, teachers, and Islamic boarding schools can be analyzed together with the level of accuracy of these relationships. Cluster mapping in network visualization may show the extent to which concepts interact or are closely related to each other, providing a clear picture of the structure of the topic being discussed.

Meanwhile, overlay visualization makes it possible to understand research development trends over a certain time period. From 2017 to 2023, the overlay visualization depicts the rise and fall of research interest related to technological literacy, teachers and Islamic boarding schools. Changes in the number of publications from year to year provide a comprehensive view of how the topic is gaining attention from researchers. Meanwhile, density visualization focuses on the frequency or density of certain keywords, highlighting research themes that are still rarely explored, such as Increasing the Technological Literacy of Islamic Boarding School Teachers, which allows identifying space for further research in that domain. The overall results of this visualization analysis provide an in-depth understanding of patterns, trends and research focus that are relevant to the topic under study. The results of network visualization analysis regarding Optimizing the Role of Teachers in Encouraging Technological Literacy in Islamic Boarding Schools using VOSviewer are depicted into 1 cluster (see Figure 1).

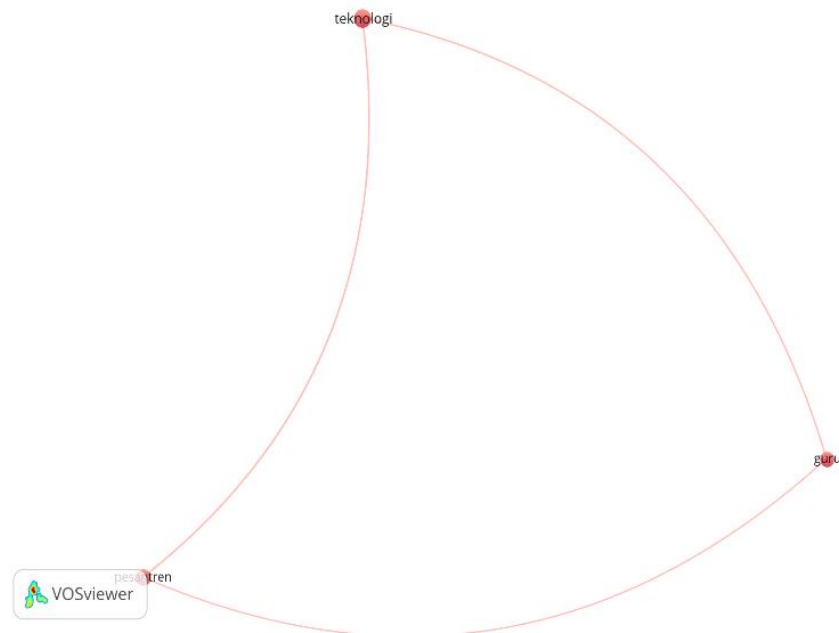


Figure 1. Network Visualization

3.2 Overlay Vizualitation

Overlay visualization analysis of research on Optimizing the Role of Teachers in Encouraging Technological Literacy in Islamic Boarding Schools focuses on research trends from 2017 to 2023. The aim is to understand the key issues, patterns and trends contained in the collection of article documents published in international journals through Google Scholar. Through overlay analysis using the VOSviewer tool, the main goal is to identify and explore the latest research patterns reflected in the yellow color of the visualization.

The yellow color in the visualization overlay indicates the newest aspects that are the focus of research, such as technology, the role of teachers, and Islamic boarding schools. This phenomenon shows that these topics have become the main focus of research attention in recent years. The color patterns that appear in this visualization allow researchers to distinguish and understand the latest research trends related to technological literacy in Islamic boarding school environments, providing valuable insights for further development in this field. By extending and detailing this understanding, research can focus more on areas that have not yet been widely explored, as well as identify research directions that can have a significant impact in developing technological literacy among Islamic boarding school teachers. (See Figure 2).

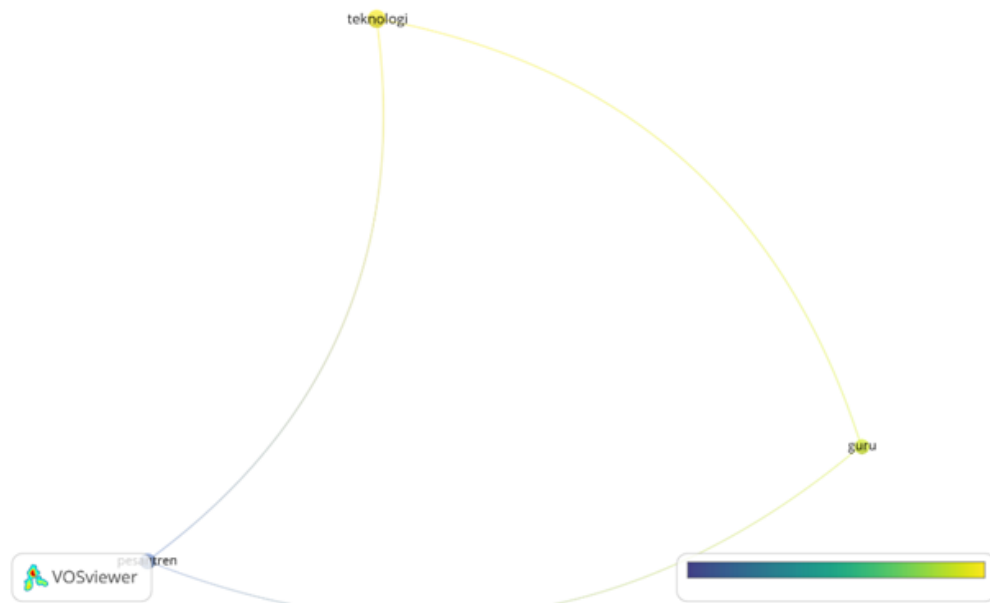


Figure 2. Overlay Vizualitation

Research trends regarding Optimizing the Role of Teachers in Encouraging Technological Literacy in Islamic Boarding Schools during the period 2017 to 2023 show an interesting pattern in the number of publications published in scientific articles. In 2017, there were only 11 publications discussing this topic. Although there was a small decrease in 2018 to 10 publications, the research trend then experienced a significant increase from year to year.

This significant increase was seen in 2019 with 46 publications, indicating increasing interest from researchers in the topic of Optimizing the Role of Teachers in Encouraging Technological Literacy in Islamic Boarding Schools. This trend continues to strengthen until it reaches its peak in 2022, with the number of publications reaching 135. However, in 2023, there will be a slight decline to 127 publications.

The increase in the number of publications from year to year shows the increasing interest and focus of researchers on this topic in recent years. Although there is a small decline in 2023, this could reflect variations in research interests or perhaps changing research directions over time. (See figure 3)

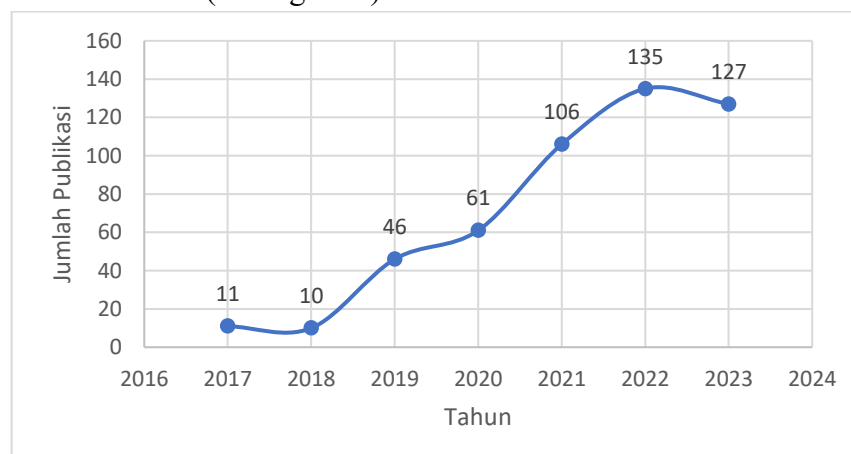


Figure 3. Trends in Optimizing the Role of Teachers in Encouraging Technological Literacy in Islamic Boarding Schools (CFS)

3.3 Density Visualization

Density visualization is an analysis technique that allows observing the density or frequency of appearance of certain keywords, in this case, technological literacy, teachers, and Islamic boarding schools in a collection of documents or articles being studied. This visualization provides an idea of how often these keywords appear in the researched literature.

The colors that appear in the density visualization image, especially bright yellow, indicate the keywords or research topics that are most frequently discussed or have the highest density in the analyzed literature. In this context, the repeated use of the keywords "technology," "teacher," and "Islamic boarding school" shows that these topics are the main focus of researchers in the observed literature.

The bright yellow color that dominates in this visualization indicates the main focus or high importance of these topics in the context of Optimizing the Role of Teachers in Encouraging Technological Literacy in Islamic Boarding Schools (See Figure 4).

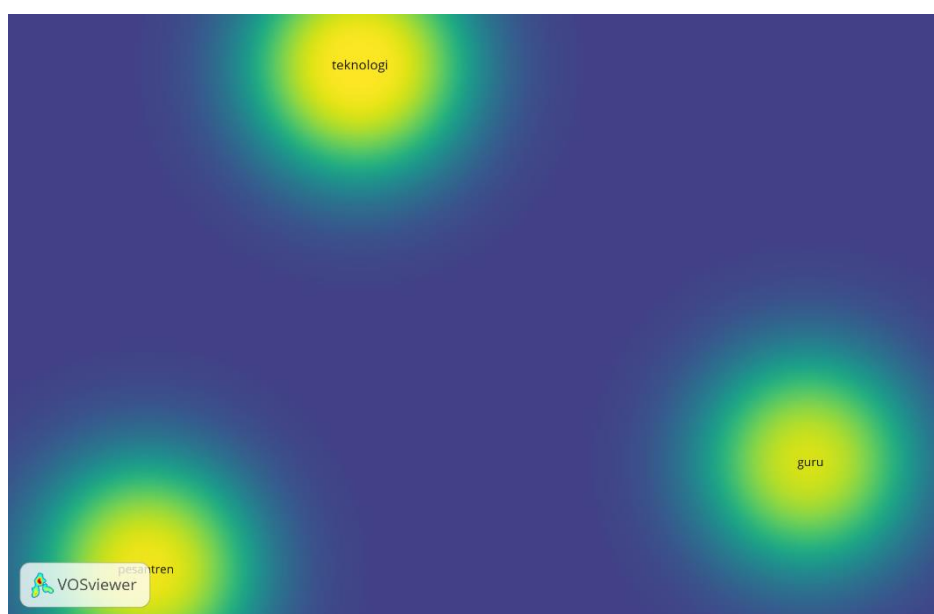


Figure 4. Density vizualitation

4. Discussion

The development of research on Optimizing the Role of Teachers in Encouraging Technological Literacy in Islamic Boarding Schools is experiencing several important trends, which can be seen through overlay visualization analysis. In the 2017-2023 period, First, overlay visualization analysis shows that research on this topic has experienced an increase in the number of publications every year. This shows increasing interest in efforts to increase technological literacy among Islamic boarding school teachers.

In addition, density visualization analysis reveals that technological literacy, teachers, Islamic boarding schools are the topics most often featured in research. This shows that technological literacy is the main focus in efforts to improve the quality of education in Islamic boarding schools. This reflects the increasing interest in strengthening technological

literacy among Islamic boarding school teachers.

Table 1. Number of citations per paper

Cites	Authors	Title	Year	Source	Publisher
464	NL Khusniyah, L Hakim	Efektivitas pembelajaran berbasis daring: sebuah bukti pada pembelajaran bahasa inggris	2019	Jurnal Tatsqif	journal.uinmataram.ac.id
333	S Priatmoko	Memperkuat Eksistensi pendidikan Islam di era 4.0	2018	TA'LIM: Jurnal Studi Pendidikan Islam	e-jurnal.unisda.ac.id
256	AR Setiawan	Pembelajaran Tematik Berorientasi Literasi Sainifik	2020	Jurnal Basicedu	jbasic.org
250	R Setyaningsih, A Abdullah, E Prihantoro, ...	Model penguatan literasi digital melalui pemanfaatan e-learning	2019	Jurnal ...	repo.unida.gontor.ac.id
175	BA Saadati, M Sadli	Analisis pengembangan budaya literasi dalam meningkatkan minat membaca siswa di sekolah dasar	2019	Terampil: Jurnal pendidikan dan ...	ejournal.radenintan.ac.id
116	E Gazali	Pesantren di antara generasi alfa dan tantangan dunia pendidikan era revolusi industri 4.0	2018	OASIS: Jurnal Ilmiah Kajian Islam	syekhnrjati.ac.id
116	E Suhartoyo, SA Wailissa, S Jalarwati, ...	Pembelajaran kontekstual dalam mewujudkan merdeka belajar	2020	Jurnal Pembelajaran ...	jim.unisma.ac.id
98	B Budiyo	Inovasi pemanfaatan teknologi sebagai media pembelajaran di era revolusi 4.0	2020	Jurnal Kependidikan: Jurnal Hasil Penelitian ...	e-journal.undikma.ac.id
98	A Priyanto	Pendidikan Islam dalam Era Revolusi Industri 4.0	2020	J-PAI: Jurnal Pendidikan Agama Islam	ejournal.uin-malang.ac.id

5. Conclusion

This research provides an overview of the evolution of research on Optimizing the Role of Teachers in Encouraging Technological Literacy in Islamic Boarding Schools from 2017 to 2023 using a bibliometric approach. Through overlay and density visualization analysis, significant trends can be seen that reflect increasing interest in technological literacy, the role of teachers, and education in Islamic boarding schools. Not only is there an increase in interest in technological literacy, but also the emphasis on focusing on

technological literacy, the role of teachers, and Islamic boarding schools within the scope of this research is very real. This is reflected in the density image analysis, which emphasizes the central role of these aspects in efforts to improve the quality of education in Islamic boarding schools.

The conclusions obtained from this research provide an in-depth understanding of trends and ongoing research focus in increasing technological literacy in Islamic boarding school education environments. The importance of integrating technology in the learning process has been emphasized as a key element to provide a significant impact in improving the quality of education in Islamic boarding schools.

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