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Determinants of Teacher Competence in Islamic Education: Bibliometric Analysis and Approach

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Abstract

This study aims to identify publications on teacher competence in *madrasah* education and describe this research's characteristics. The bibliometric analysis method was used in this study. The results showed that publications on teacher competency in *madrasahs*/schools increased yearly from 2017 to 2020. The highest number of documents was at the institution or university "Sunan Kalijaga State Islamic University Yogyakarta" with six documents, in the journal "JIP Scientific Journal PGMI" with 85 documents, and one article in the *Journal of Research and Thought on Islamic Education (JRTIE)* entitled "Strengthening new literacy for primary school teachers in responding to the challenges of the industrial revolution era 4.0". The focus of the first research was observation and management. The second research focus was social competency and teacher competency. The third research focus was development and implementation. The new theme keywords are planning, preparation, elementary school, and lesson plan. That is, the keywords with the latest theme can be used as a novelty for further research that wants to research related to this field.

Keywords: Bibliometric Analysis, Islamic Schools, Teacher Competence.

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Introduction

Teachers are an essential element in creating good quality education.¹ As educators, teachers are responsible for teaching and guiding, and assisting students to achieve their best potential. To improve the quality of education in Indonesia, attention to teacher competence

¹ Pierre du Plessis and Raj Mestry, "Teachers for Rural Schools – a Challenge for South Africa," *South African Journal of Education* 39, no. Supplement 1 (September 30, 2019): S1–9, <https://doi.org/10.15700/saje.v39ns1a1774>.

is very important. Teacher competence refers to the teacher's ability to master the subject matter, teach, and facilitate student learning. Teacher competency in Indonesia is still a problem that needs to be addressed. Many teachers in Indonesia still have limitations regarding competence, knowledge, skills, and attitudes.²

Data shows that teacher competence in Indonesia is still low compared to international standards. Based on the 2018 Program for International Student Assessment (PISA) global study results, Indonesia ranks 74th out of 79 participating countries regarding students' reading ability, which shows that the quality of education in Indonesia still needs to be improved.³ It can be seen from the low results of the teacher competency test, which shows that teacher competence is still lacking in several areas.

Table 1. Teacher Competence in Several Regions of Indonesia

| Province | ES | JHS | SHS | VS | P1 | P2 | Ave. |
|---------------------|-------|-------|-------|-------|-------|-------|-------|
| DKI Jakarta | 60.64 | 63.37 | 70.00 | 60.06 | 56.74 | 65.09 | 62.58 |
| Sumatera Utara | 50.05 | 54.25 | 58.28 | 53.62 | 48.04 | 54.31 | 52.43 |
| Kalimantan Barat | 51.15 | 57.21 | 61.26 | 58.08 | 49.80 | 55.79 | 53.99 |
| Sulawesi Utara | 50.01 | 52.39 | 55.18 | 52.92 | 48.82 | 52.86 | 51.65 |
| Nusa Tenggara Barat | 50.63 | 52.81 | 56.30 | 54.96 | 49.42 | 53.66 | 52.38 |
| Papua | 46.19 | 50.07 | 53.76 | 52.04 | 47.34 | 49.84 | 49.09 |

Source: (Kemendikbud, 2021, <https://npd.kemdikbud.go.id/>)

Note: ES = Elementary School, JHS= Junior High School, SHS=Senior High School, VS= Vocational School, P1= Pedagogic, P2= Professional, and Ave.= Average

Table 1 shows that the average teacher competence in Indonesia is still relatively low. Of the seven provinces above, only the province of DKI Jakarta became the province with the highest teacher competency test (UKG) scores. The regions of North Sumatra, West Kalimantan, North Sulawesi, West Nusa Tenggara, and Papua followed it. DKI Jakarta Province is also a province that has passed the minimum standard set, namely 55. The low teacher competency test scores indicate that teacher competence in Indonesia is still lacking. That is also supported by several previous studies that say teacher competency in Indonesia

² Hanif Cahyo Adi Kistoro et al., "Teacher's Experiences in Character Education for Autistic Children," *International Journal of Evaluation and Research in Education (IJERE)* 10, no. 1 (March 1, 2021): 65–77, <https://doi.org/10.11591/ijere.v10i1.20743>.

³ Indah Pratiwi, "Efek Program Pisa Terhadap Kurikulum Di Indonesia," *Jurnal Pendidikan Dan Kebudayaan* 4, no. 1 (June 10, 2019): 51–71, <https://doi.org/10.24832/jpnk.v4i1.1157>; Maimunatun Habibah, "Pengembangan Budaya Literasi Agama Di SMA Negeri 2 Kediri," *Indonesian Journal of Islamic Education Studies (IJIES)* 2, no. 2 (2019): 203–15, <https://doi.org/10.33367/ijies.v2i2.1110>.

is still low.⁴ In addition, the results of the 2019 Trends in International Mathematics and Science Study (TIMSS) analysis show that the average score of Indonesian students in mathematics and science is still below the international average.⁵ In this case, the role of the teacher as a teacher and learning facilitator is significant in improving education quality.

The problem of teacher competency in Indonesia can be seen from several indicators, such as the low quality of formal education in colleges and universities, low teacher motivation and work ethic, and minimal training and professional development for teachers.⁶ In addition, there are still gaps between teachers in cities and remote areas regarding competency, educational resources, and access to technology.

Several studies state that teacher competence is still low, such as research conducted by Sudiana, which uses the workshop and mentoring (shopping) method to improve teacher competence which is still lacking.⁷ Furthermore, Fadhillah et al. research aim to find the underlying problem that causes low teacher competency tests to be based on systems thinking.⁸ Low teacher competence is not only experienced by general education, but Islamic education also experiences the same thing. Therefore, it is necessary to conduct a study to find out the factors that can support teacher competence in Islamic education, one of which is by conducting a bibliometric analysis.

Bibliometric analysis was used to analyze publications related to teacher competence in *madrasah* schools. Bibliometric is a statistical method used to analyze research results in specific fields.⁹ The purpose of this research is to identify publications related to teacher

⁴ Ratna Sari Wulandari and Wiwin Hendriani, "Kompetensi Pedagogik Guru Sekolah Inklusi Di Indonesia (Suatu Pendekatan Systematic Review)," *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran* 7, no. 1 (March 3, 2021): 143, <https://doi.org/10.33394/jk.v7i1.3152>; Diki Somantri, "Abad 21 Pentingnya Kompetensi Pedagogik Guru," *Equilibrium: Jurnal Penelitian Pendidikan Dan Ekonomi* 18, no. 02 (July 24, 2021): 188–95, <https://doi.org/10.25134/equi.v18i2.4154>.

⁵ Eneng Indriyani Fitri Hidayat, Indhira Asih Vivi Yandhari, and Trian Pamungkas Alamsyah, "Efektivitas Pendekatan Realistic Mathematics Education (RME) Untuk Meningkatkan Kemampuan Pemahaman Konsep Matematika Siswa Kelas V," *Jurnal Ilmiah Sekolah Dasar* 4, no. 1 (April 3, 2020): 106, <https://doi.org/10.23887/jisd.v4i1.21103>.

⁶ Muazza Muazza, "In Search of Quality Human Resources in Education: Professional Competency, Compensation, Working Climate, and Motivation toward Vocational Teachers' Performance," *Indonesian Research Journal in Education /IRJE/* 5, no. 1 (April 4, 2021): 175–91, <https://doi.org/10.22437/irje.v5i1.12497>.

⁷ Nyoman Sudiana, "Implementasi Tindak Lanjut Hasil Supervisi Akademik Untuk Meningkatkan Kompetensi Guru Dalam Pembelajaran Berbasis TIK Melalui Pembimbingan Dengan Shoping," *Journal of Education Action Research* 3, no. 4 (November 30, 2019): 410, <https://doi.org/10.23887/jear.v3i4.22332>.

⁸ Fadhillah Fadhillah et al., "Upaya Peningkatan Kompetensi Guru Berdasarkan System Thinking," *Jurnal Akuntabilitas Manajemen Pendidikan* 7, no. 1 (April 16, 2019): 1–14, <https://doi.org/10.21831/amp.v7i1.22066>.

⁹ Ilham Muhammad et al., "Analisis Bibliometrik: Penelitian Augmented Reality Dalam Pendidikan Matematika," *JIPM (Jurnal Ilmiah Pendidikan Matematika)* 11, no. 1 (September 9, 2022): 141–55, <https://doi.org/10.25273/jipm.v11i1.13818>; Fadli Agus Triansyah, Suwatno Suwatno, and Endang Supardi,

competence in *madrasah* education and to describe the characteristics of this research. Bibliometric analysis was used in this study to explore the publication characteristics of teacher competence in *madrasah* education and related factors and to analyze trends in research focus in this field.

Methods

This study used bibliometric visualization and bibliometric analysis methods. As a quantitative method, bibliometric analysis uses an evaluative and descriptive approach to represent research trends and the characteristics of a series of publications. The bibliometric visualization method shows a structural picture of a particular research area.¹⁰ The sample in this study is 328 publications obtained from the dimensions database that correspond to the selected keywords. The keywords in this study are teacher competency and *madrasah*. The selected publications are from the last decade (2013-2023) using the VOSviewer application with three views: network visualization, overlay visualization, and density visualization. The indicators are by paying attention to the number of publications, citations, and the link strength between the displayed objects.

We collected metadata based on the Dimensions database related to teacher competency and *madrasah* for the last ten years (2013-2023). VOSviewer software was used in this study to analyze and visualize and evaluate all information about publications that have been collected related to this field, such as author's bibliographic pair, country, institution, journal, and co-appearance of author keywords.¹¹ VOSviewer is software for creating network visualizations of terms commonly used in specific fields. VOSviewer is very useful and widely used in bibliometric analysis.¹² In addition to creating network

¹⁰“Fokus Penelitian Berpikir Kritis Siswa dalam Pembelajaran Ekonomi: Bibliometrik Analisis 2019-2023,” *Jurnal Simki Pedagogia* 6, no. 1 (February 15, 2023): 130–39, <https://doi.org/10.29407/jsp.v6i1.226>.

¹¹ Eugene Garfield, “From the Science of Science to Scientometrics Visualizing the History of Science with HistCite Software,” *Journal of Informetrics* 3, no. 3 (July 2009): 173–79, <https://doi.org/10.1016/j.joi.2009.03.009>.

¹² Nees Jan van Eck and Ludo Waltman, “Citation-Based Clustering of Publications Using CitNetExplorer and VOSviewer,” *Scientometrics* 111, no. 2 (May 27, 2017): 1053–70, <https://doi.org/10.1007/s11192-017-2300-7>; Enrique Orduña-Malea and Rodrigo Costas, “Link-Based Approach to Study Scientific Software Usage: The Case of VOSviewer,” *Scientometrics* 126, no. 9 (September 1, 2021): 8153–86, <https://doi.org/10.1007/s11192-021-04082-y>; David Opeoluwa Oyewola and Emmanuel Gbenga Dada, “Exploring Machine Learning: A Scientometrics Approach Using Bibliometrix and VOSviewer,” *SN Applied Sciences* 4, no. 5 (April 11, 2022): 143, <https://doi.org/10.1007/s42452-022-05027-7>; Benjamin K. Sovacool, Chux Daniels, and Abbas AbdulRafiu, “Science for Whom? Examining the Data Quality, Themes, and Trends in 30 Years of Public Funding for Global Climate Change and Energy Research,” *Energy Research & Social Science* 89 (July 1, 2022): 102645, <https://doi.org/10.1016/j.erss.2022.102645>.

¹² Nees Jan van Eck and Ludo Waltman, “Software Survey: VOSviewer, a Computer Program for Bibliometric Mapping,” *Scientometrics* 84, no. 2 (August 31, 2010): 523–38, <https://doi.org/10.1007/s11192-009-0146-3>;

visualizations, VOSviewer is also used to analyze evolution in specific fields based on standard terms.¹³ According to Dewi et al., the research stages in the bibliometric analysis are as follows.¹⁴

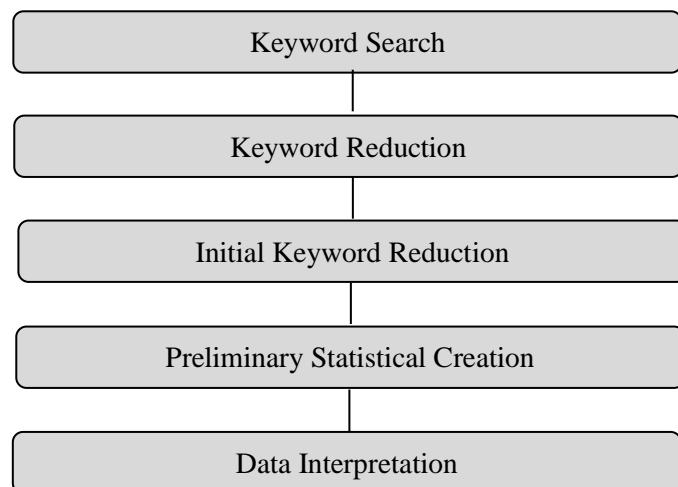


Figure 1. Stages of the Bibliometric Analysis Method

In the Figure 1, there are five stages in the bibliometric analysis method, namely, 1) investigating keywords or determining keywords: before carrying out data collection, the researcher focused on keywords on teacher competency in *madrasah*; 2) reduction of the initial search: classification or grouping searches that only focus on predetermined keywords, in this case the researcher uses the Dimensions database to search for articles based on keywords; 3) reduction of the initial search total: manual selection of all search results, in this case the researcher uses the VOSviewer application to determine thresholds as needed, 4) compilation of initial statistical images: grouping data as topic descriptions, such as compiling results from visualizations on country bibliographic pairs, Institutional bibliographical pair, journal bibliographical pair, publication bibliographical pair, author bibliographical pair, and co-occurrence of the author's keywords; 5) data interpretation in analytical narrative: explanation of research findings based on selection results, data

Syed Hamad Hassan Shah et al., "Prosumption: Bibliometric Analysis Using HistCite and VOSviewer," *Kybernetes: The International Journal of Systems & Cybernetics* 49, no. 3 (December 11, 2019): 1020–45, <https://doi.org/10.1108/K-12-2018-0696>.

¹³ Deepa Guleria and Gurvinder Kaur, "Bibliometric Analysis of Ecopreneurship Using VOSviewer and RStudio Bibliometrix, 1989–2019," *Library Hi Tech* 39, no. 4 (November 30, 2021): 1001–24, <https://doi.org/10.1108/LHT-09-2020-0218>; Tianji Huang et al., "Visualized Analysis of Global Studies on Cervical Spondylosis Surgery: A Bibliometric Study Based on Web of Science Database and VOSviewer," *Indian Journal of Orthopaedics* 56, no. 6 (June 1, 2022): 996–1010, <https://doi.org/10.1007/s43465-021-00581-5>.

¹⁴ Pramita Sylvia Dewi et al., "Web-Based Inquiry in Science Learning: Bibliometric Analysis," *Indonesian Journal of Science and Mathematics Education* 4, no. 2 (July 31, 2021): 191–203, <https://doi.org/10.24042/ijsm.v4i2.9576>.

interpretation is done with the VOSviewer application. VOSviewer visualization provides data representation in variable maps related to keywords and has development opportunities.

The data analysis technique is deductive by starting from general findings to more specific results, such as country bibliography pairs, Institution bibliography pairs, journal bibliography pairs, publication bibliography pairs, author bibliography pairs, and the co-occurrence of keywords. The author so that readers follow the information provided, from general to more specific.¹⁵

Discussion

In this study, presenting the results of the bibliometric refer to Donthu et al.¹⁶ and Ellili¹⁷ starting from the number of documents and links from countries, institutions, journals, authors, and the emergence of shared keywords visualized with VOSviewer such as Network Visualization, and Overlay Visualizations. Initially, 15,833 publications in the dimensional database related to teacher competency were issued. However, after the researchers narrowed the keyword to become teacher competency in *madrasahs*, the dimensional database became 328 publications.

Table 2. Number and Percentage of Teacher Competency Publications in *Madrasah* Schools

| No. | Year of Publication | Number of Publications | Percentage |
|-------|---------------------|------------------------|------------|
| 1. | 2023 | 3 | 0,91 % |
| 2. | 2022 | 62 | 18,90 % |
| 3. | 2021 | 63 | 19,21 % |
| 4. | 2020 | 64 | 19,51 % |
| 5. | 2019 | 45 | 13,72 % |
| 6. | 2018 | 23 | 7,01 % |
| 7. | 2017 | 15 | 4,57 % |
| 8. | 2016 | 31 | 9,45 % |
| 9. | 2015 | 18 | 5,49 % |
| 10. | 2014 | 3 | 0,91 % |
| 11. | 2013 | 1 | 0,30 % |
| Total | | 328 | 100,00 % |

¹⁵ Colin I.S.G. Lee, Will Felps, and Yehuda Baruch, "Toward a Taxonomy of Career Studies through Bibliometric Visualization," *Journal of Vocational Behavior* 85, no. 3 (December 2014): 339–51, <https://doi.org/10.1016/j.jvb.2014.08.008>; Zara Ersozlu and Mehmet Karakus, "Mathematics Anxiety: Mapping the Literature by Bibliometric Analysis," *Eurasia Journal of Mathematics, Science and Technology Education* 15, no. 2 (January 6, 2019): em1673, <https://doi.org/10.29333/ejmste/102441>.

¹⁶ Naveen Donthu et al., "How to Conduct a Bibliometric Analysis: An Overview and Guidelines," *Journal of Business Research* 133 (September 2021): 285–96, <https://doi.org/10.1016/j.jbusres.2021.04.070>.

¹⁷ Nejla Ould Daoud Ellili, "Bibliometric Analysis on Corporate Governance Topics Published in the Journal of Corporate Governance: The International Journal of Business in Society," *Corporate Governance: The International Journal of Business in Society*, August 23, 2022, <https://doi.org/10.1108/CG-03-2022-0135>.

Table 2 shows that the highest number of publications per year is in 2020, namely 64 publications or 19.51%, an increase from 2017 when there were only 15 and more than 60 publications in the following years. Of the 328 publications, all came from articles published in journals. Researchers use the number of publications and the number of documents in sorting institutions and journals.

State Bibliographical Partners

Dimension-indexed documents related to teacher competency in *madrasah* schools were published in various countries. The country is seen based on the author's origin of the published document. There are four countries shown with no threshold set.

Table 3. Number of Publications by Country

| Country | Documents | Citations | Total Link Strength |
|------------|-----------|-----------|---------------------|
| Indonesia | 75 | 39 | 19 |
| Japan | 1 | 5 | 12 |
| Algeria | 1 | 0 | 7 |
| Bangladesh | 1 | 1 | 0 |

From Table 3, it can be seen that Indonesia is the country that has published the most articles related to this field, with 75 publications. Indonesia has the most significant number of publications and the country with the most cited publications and has a sizeable total link strength compared to the other three countries. Next, you will see patterns of cooperation between countries displayed with the help of VOSviewer.



Figure 2. Patterns of State Cooperation

From Figure 2, it can be seen that Indonesia has the most prominent circle compared to other countries. It means that Indonesia is a country that has a high level of cooperation with other countries. Indonesia is the most influential in terms of teacher competence in

madrasah schools because Indonesia has the highest number of links and citations compared to other countries. That is because Indonesia is the largest Muslim country in the world.¹⁸

Institute Bibliography Partner

Several institutions or universities published dimension-indexed documents about teacher competency in madrasah schools. The ten institutions or universities with the highest number of documents, followed by the number of citations and the total link strength, are shown in Table 4.

Table 4. Number of Documents Related to Teacher Competency in *Madrasah Schools*

| No. | Institution or University Name | Number of Documents | City | Country |
|-----|--|---------------------|-------------|-----------|
| 1. | Sunan Kalijaga State Islamic University | 6 | Yogyakarta | Indonesia |
| 2. | Maulana Malik Ibrahim State Islamic University | 5 | Malang | Indonesia |
| 3. | Raden Fatah State Islamic University | 4 | Palembang | Indonesia |
| 4. | Imam Bonjol State Islamic University | 4 | Padang | Indonesia |
| 5. | State University of Malang | 3 | Malang | Indonesia |
| 6. | Lambung Mangkurat University | 2 | Banjarmasin | Indonesia |
| 7. | State Islamic Institute of Salatiga | 2 | Salatiga | Indonesia |
| 8. | State Islamic Institute of Madura | 2 | Madura | Indonesia |
| 9. | Haluoleo University | 2 | Kendari | Indonesia |
| 10. | Alauddin State Islamic University | 2 | Makasar | Indonesia |

Table 4 shows the trend of institutions or universities with the highest number of citations regarding teacher competency at madrasah schools. It can be seen that Sunan Kalijaga State Islamic University Yogyakarta is in the top rank with six documents and 1 citation, followed by Maulana Malik Ibrahim State Islamic University in second place with 5 document counts and no citations. The top 10 institutions or universities above come from

¹⁸ Greg Barton, Ihsan Yilmaz, and Nicholas Morieson, "Authoritarianism, Democracy, Islamic Movements and Contestations of Islamic Religious Ideas in Indonesia," *Religions* 12, no. 8 (2021): 1–20, <https://doi.org/10.3390/rel12080641>; Rahmatina Awaliah Kasri and Untung Handayani Ramli, "Why Do Indonesian Muslims Donate through Mosques? A Theory of Planned Behaviour Approach," *International Journal of Islamic and Middle Eastern Finance and Management* 12, no. 5 (January 1, 2019): 663–79, <https://doi.org/10.1108/IMEFM-11-2018-0399>; Yudho Taruno Muryanto, Dona Budi Kharisma, and Anjar Sri Ciptorukmi Nugraheni, "Prospects and Challenges of Islamic Fintech in Indonesia: A Legal Viewpoint," *International Journal of Law and Management* 64, no. 2 (January 1, 2021): 239–52, <https://doi.org/10.1108/IJLMA-07-2021-0162>; Bagaskoro Bagaskoro, "Manajemen Mutu Pembinaan Tenaga Pendidik Dalam Meningkatkan Kompetensi Profesional (Studi Analitis Deskriptif Di SMK Pelayaran Malahayati Jakarta Dan SMK Pelayaran Buana Bahari Cirebon)," *Al-Afkar, Journal For Islamic Studies* 5, no. 4 (October 25, 2022): 268–80, <https://doi.org/10.31943/afkarjournal.v5i4.376>; M. Sugeng Sholehuddin, Munjin Munjin, and Hendri Hermawan Adinugraha, "Islamic Tradition and Religious Culture in Halal Tourism: Empirical Evidence from Indonesia," *IBDA : Jurnal Kajian Islam Dan Budaya* 19, no. 1 (February 4, 2021): 79–100, <https://doi.org/10.24090/ibda.v19i1.4470>; Berto Mulia Wibawa et al., "Discovering the Importance of Halal Tourism for Indonesian Muslim Travelers: Perceptions and Behaviors When Traveling to a Non-Muslim Destination," *Journal of Islamic Marketing* 14, no. 1 (January 2, 2023): 61–81, <https://doi.org/10.1108/JIMA-07-2020-0210>.

only one country, namely Indonesia. However, when viewed by the city, publications in this field are spread across various major islands in Indonesia, starting from the islands of Sumatra, Java, Kalimantan, and Sulawesi, which have published articles in this field. Papua Island, one of the largest islands in Indonesia, is not included in the city with the most significant number of documents related to this field. That means the university distribution with the most documents is not only on one island but spread over four major islands.

Journal Bibliography Pair

The dimensional indexed documents about teacher competency in madrasah schools are published in various journals. Of the 328 documents that have been collected, the researcher uses the VOSviewer application to view pairs of journal bibliographies. Then the researcher sorts the journals based on the number of documents. The ten journals with the highest number of documents are presented in the following table.

Table 5. Journals that have the Highest Number of Documents Related to Teacher Competency in *Madrasah Schools*

| No. | Name of Journals | Number of Documents |
|------------|--|----------------------------|
| 1. | JIP Jurnal Ilmiah PGMI | 85 |
| 2. | Edukasi Jurnal Penelitian Pendidikan Agama dan Keagamaan | 6 |
| 3. | Al Ibtida Jurnal Pendidikan Guru MI | 5 |
| 4. | Tatar Pasundan Jurnal Diklat Keagamaan | 4 |
| 5. | Al-Ishlah Jurnal Pendidikan | 3 |
| 6. | Analisa Journal of Social Science And Religion | 3 |
| 7. | Jurnal Ilmiah Ekonomi Islam | 3 |
| 8. | Jurnal Pendidikan Islam | 3 |
| 9. | Jurnal Pendidikan Madrasah | 3 |
| 10. | Tarbawi Jurnal Keilmuan Manajemen Pendidikan | 3 |

Table 5 shows the trend of journals with the highest number of documents regarding teacher competency in madrasah schools, and it can be seen that the journal JIP PGMI Scientific Journal is in the top rank with 85 documents, followed by Education Research Journal of Religious and Religious Education with six documents. That means that the results of research on teacher competency follow the focus and scope of the journals above, so it is helpful for researchers who want to publish research documents related to teacher competency, especially in the journal JIP Scientific Journal PGMI because most of the articles are published in that journal.

Document Bibliography Pair

Dimension-indexed documents about teacher competency in madrasah schools are published in various journals. Documents with more than ten citations are presented in the following figure.

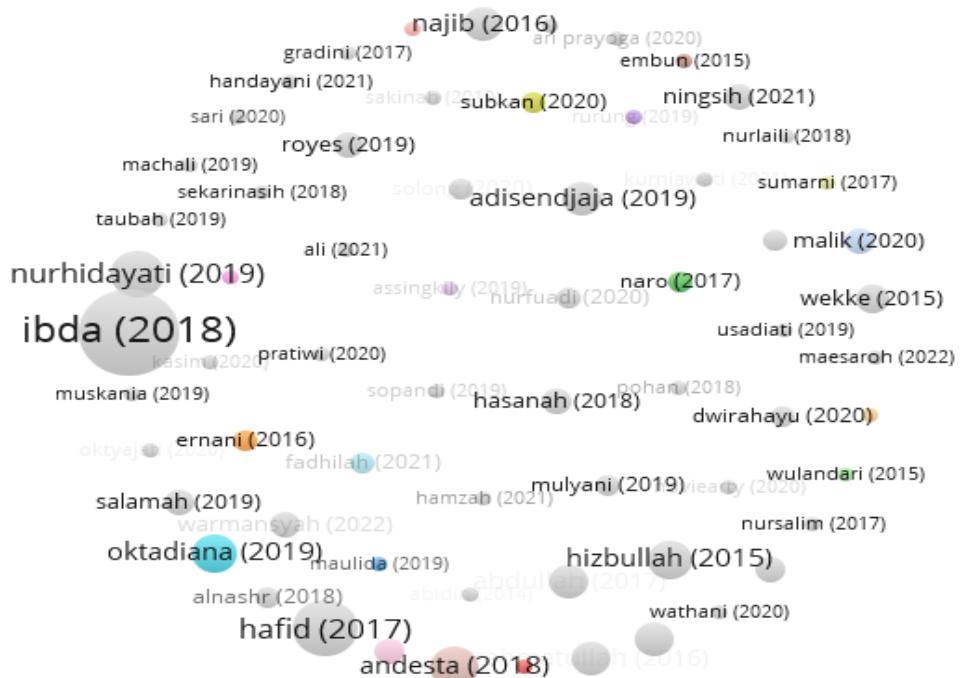


Figure 3. Documents with the Highest Number of Citations

Figure 3 shows that the document with the highest number of citations is research conducted by Ibda with the title "Strengthening new literacy for primary school teachers in Responding to the Challenges of the 4.0 industrial revolution era", which has been cited 33 times.¹⁹ The data obtained from the PoP software is combined with the RIS format in one file. Then the file is entered into the VOSviewer software to receive bibliometric analysis results. Researchers use a threshold in determining the use of shared keywords, namely a minimum of 15 shared keywords, meaning that one keyword is used in at least 15 documents appearing in the visualization on VOSviewer, as shown in the image below.

¹⁹ Hamidulloh Ibda, "Penguatan Literasi Baru Pada Guru Madrasah Ibtidaiyah Dalam Menjawab Tantangan Era Revolusi Industri 4.0," *Journal of Research and Thought on Islamic Education (JRTIE)* 1, no. 1 (September 20, 2018): 1–21, <https://doi.org/10.24260/jrtie.v1i1.1064>.

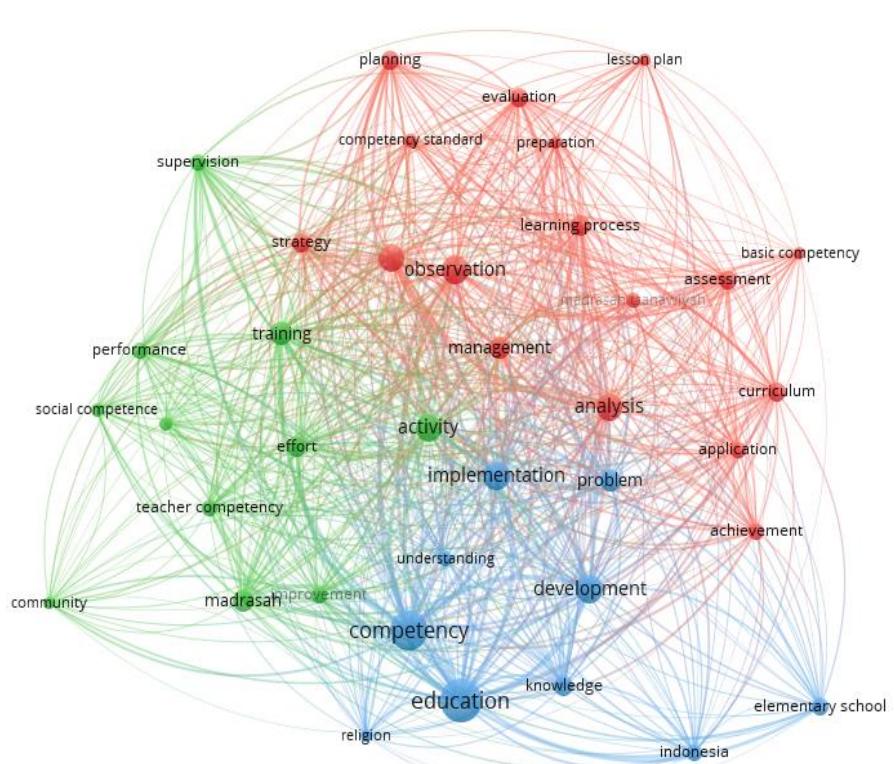


Figure 4. Network Visualization of the Emergence of Shared Keywords

Figure 4 shows a network visualization of shared keywords (minimum 15). It can be seen that "*Education, competency, and implementation*" are the most used keywords together. The size of the circle in the keyword can be this. The more critical process, the more researchers use the keyword related to teacher competency in *madrasah* schools.

The results of the network visualization in Figure 5 shows that there are 3 clusters with 38 items regarding teacher competency in madrasah schools, namely, 1) Cluster 1 (colored red) consists of 17 items; 2) cluster 2 (in green) consists of 11 items; 3) cluster 3 (dark blue) consists of 10 items. It shows the focus of research related to teacher competency in madrasah schools. That means that there are three research focuses. The first research focuses on cluster 1 with the keywords observation and management. The second research focus is cluster 2 with social and teacher competency keywords. The third research focus is cluster 3 with the development and implementation of the keyword. The three research focuses above can be used as a reference for further researchers to determine the research theme.

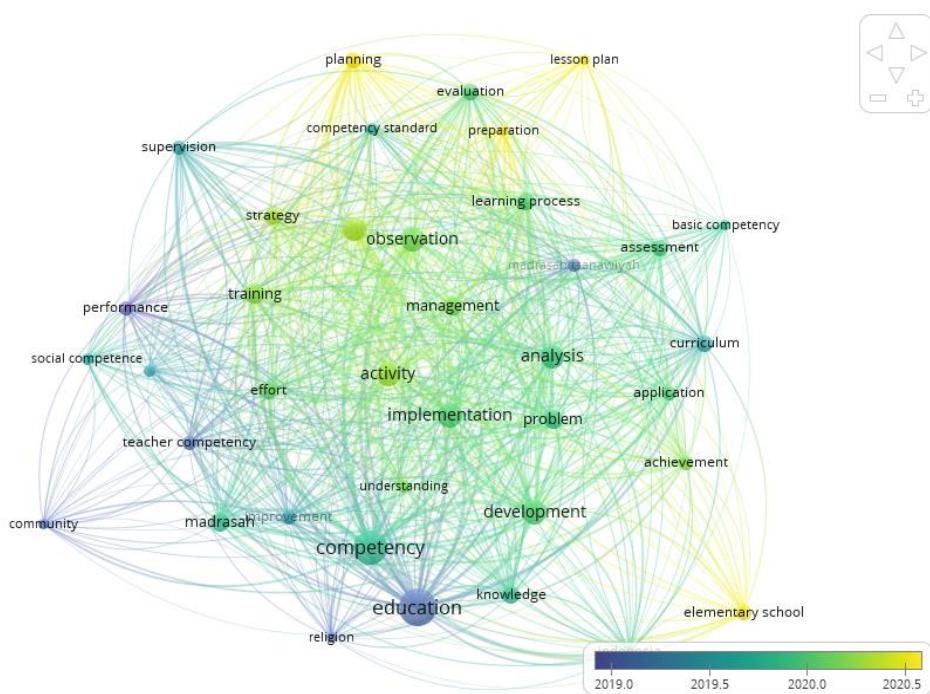


Figure 5. Overlay Visualization of the Emergence of Shared Keywords based on Publication Year

From Figure 5, there are three different colors. The yellow indicates these keywords were used together around 2021-2023, while the blue color shows the use of keywords together around 2013-2018, and the green color around 2019-2020. It indicates a change in terms within a certain period. The new theme keywords are *planning, preparation, elementary school, and lesson plan*.

From the results of the discussion above, research or the number of publications related to teacher competency in madrasah schools is increasing every year. The most significant number of documents is in Indonesia. Indonesia has the most links and the highest number of citations compared to other countries. The highest number of documents is at the institution or university "Sunan Kalijaga State Islamic University Yogyakarta" with six documents, in the journal "JIP Scientific Journal PGMI" with 85 documents, then in the article with the title "Strengthening new literacy for primary school teachers in responding to the challenges of the 4.0 industrial revolution era".²⁰ The first research focuses on cluster 1 with the keywords observation and management. The second research focus is cluster 2 with social and teacher competency keywords. The third research focus is cluster 3 with the development and implementation of the keyword. The three research focuses above can be used as a reference for further researchers to determine the research theme. The new theme keywords are planning, preparation, elementary school, and lesson plan. That is, the

20 Ibda.

keywords with the latest theme can be used as a novelty for further research that wants to research related to this field.

Conclusion

From the results and discussion above, it can be concluded that the number of publications related to teacher competency in madrasa schools has increased yearly from 2017 to 2020. The most significant number of documents is in Indonesia. Indonesia has the most links and the highest number of citations compared to other countries. The highest number of documents is at the institution or university "Sunan Kalijaga State Islamic University Yogyakarta" with six documents, in the journal "JIP Scientific Journal PGMI" with 85 documents, then in the article Ibda (2018) with the title "Strengthening new literacy for primary school teachers in responding to the challenges of the 4.0 industrial revolution era". The first research focuses on cluster 1 with the keywords observation and management. The second research focus is cluster 2 with social and teacher competency keywords. The third research focus is cluster 3 with the development and implementation of the keyword. The three research focuses above can be used as a reference for further researchers to determine the research theme. The new theme keywords are planning, preparation, elementary school, and lesson plan. That is, the keywords with the latest theme can be used as a novelty for further research that wants to research related to this field.

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