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Analisis Bibliometrik Penulisan Pendidikan Bahasa Indonesia Berdasarkan Data Semantic Scholar Trend

Bibliometric Analysis of Indonesian Language Education Writing Based on Semantic Scholar Trend Data

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ABSTRAK

Pendidikan menulis merupakan aspek penting dalam mengembangkan keterampilan literasi dan komunikasi di Indonesia. Meskipun telah terjadi peningkatan penelitian di bidang ini, namun terdapat kesenjangan antara teori dan praktik yang ada di lapangan, khususnya dalam penerapan strategi pembelajaran yang efektif dan teknologi dalam pendidikan menulis. Penelitian ini bertujuan untuk menganalisis tren dan pola penelitian pendidikan penulisan di Indonesia melalui pendekatan bibliometrik. Dengan cara ini, diharapkan dapat mengidentifikasi kesenjangan penelitian yang ada dan memberikan rekomendasi untuk pengembangan metode pengajaran yang lebih inovatif. Metode yang digunakan antara lain pengumpulan data dengan software Publish or Perish (PoP) untuk mengumpulkan informasi publikasi dan kutipan. Selanjutnya, analisis dilakukan menggunakan VOSviewer untuk memetakan jaringan kolaborasi penulis dan hubungan kutipan antar artikel. Temuan utama menunjukkan bahwa terdapat 3.567 makalah dengan total 10.333 kutipan, dan rata-rata kutipan per makalah adalah 2,90. Indeks Hirsch mencapai 40, menunjukkan adanya publikasi yang berpengaruh. Meskipun berbagai metode inovatif telah diterapkan, kesenjangan dalam penelitian terkait integrasi teknologi dan pedagogi modern masih perlu ditangani. Kesimpulan penelitian ini menekankan bahwa analisis bibliometrik memberikan wawasan berharga tentang arah penulisan penelitian pendidikan. Rekomendasi yang dihasilkan diharapkan dapat membantu pendidik dalam merancang kurikulum dan metode pengajaran yang lebih efektif, sehingga meningkatkan kualitas pendidikan menulis di Indonesia.

ABSTRACT

Writing education is an important aspect of developing literacy and communication skills in Indonesia. Although there has been an increase in research in this field, there is a gap between existing theory and practice in the field, particularly in the implementation of effective learning strategies and technology in writing education. This study aims to analyze trends and patterns of research in writing education in Indonesia through a bibliometric approach. In this way, it is expected to identify existing research gaps and provide recommendations for the development of more innovative teaching methods. The methods used include data collection with the Publish or Perish (PoP) software to gather information on publications and citations. Subsequently, analysis is conducted using VOSviewer to map the collaboration networks of authors and citation relationships between articles. The main findings indicate that there are 3,567 papers with a total of 10,333 citations, and the average citation per paper is 2.90. The Hirsch index reaches 40, indicating the presence of influential publications. Although various innovative methods have been implemented, gaps in research related

to the integration of technology and modern pedagogy still need to be addressed. The conclusion of this study emphasizes that bibliometric analysis provides valuable insights into the direction of writing education research. The resulting recommendations are expected to assist educators in designing more effective curricula and teaching methods, thereby improving the quality of writing education in Indonesia.

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1. INTRODUCTION

Writing education is a fundamental aspect in the education system that plays an important role in the development of literacy skills, academic communication, and professionalism. In Indonesia, research on writing education is growing, along with the increasing need for a deeper understanding of literacy in the academic and professional world [1]. Bibliometric reviews have been an effective method for analyzing research trends in this field, allowing for the identification of publication patterns as well as the impact of research on educational policy and practice.

Bibliometric analysis is increasingly used in research in Indonesia to identify academic trends, scientific productivity, and researcher collaboration. Studies conducted by Destari & Hidayat [2] show the growth of educational research, although access to international journals is still a challenge. In the field of Islamic Education, Busro et al. [3] found an increase in publications in Scopus, but collaboration between researchers still needs to be strengthened. Meanwhile, Ariyanto [4] researched the research trends of mathematical modeling, while Machmud et al. [5] used the R Package to analyze critical thinking skills in academic research.

The use of tools such as Vosviewer and R Package is increasingly helpful in mapping research trends and their impact in various fields. Bibliometric analysis allows researchers to understand the distribution of publications and the dynamics of academic collaboration in Indonesia. Bibliometrics as a research data analysis approach has been widely used in various educational contexts, including peace education [6], literacy education [1], and language and writing education [7]. In writing education, bibliometric research can reveal the development of studies related to learning strategies, the effectiveness of teaching methods, and the integration of technology in teaching academic writing [8]. In addition, metacognition in teaching English writing in secondary schools is also an important focus in recent research.

The main benefit of bibliometric studies in writing education is its ability to identify research gaps, analyze publication patterns, as well as highlight the influence of certain concepts in the academic literature. By understanding these trends, educators and researchers can design more effective strategies in improving students' writing skills, developing adaptive curricula, and optimizing technology-based learning methods and modern pedagogy [9].

Writing is an essential skill in the academic and professional world, as it allows individuals to express ideas systematically and reinforce literacy [10]. In the context of education in Indonesia, Amalia [11] found that many students still face difficulties in writing due to a lack of understanding of grammar and text structure. Toba & Noor [12] highlighted that difficulties in writing comparative and contrast essays reflect weak critical thinking skills and idea organization. In addition, students' attitudes towards writing in English are also diverse, with some of them experiencing anxiety and lack of motivation [10]. Therefore, [13] emphasized the need to develop writing teaching materials that are more in line with the needs of students to improve their skills effectively.

The application of research on writing teaching in Indonesia has grown rapidly with various methodological approaches applied in the learning process. Previous studies have shown that the learning methods used have an important role in improving students' writing skills at various levels of education. Khair and Misnawati [14] examined a cooperative learning model with explicit instructions using the chronology of events technique in improving narrative writing skills. This method allows students to understand the narrative structure more systematically. A more interactive approach is also applied by Oktavia et al. [11], who examined the influence of *the Guided Discovery Learning* method with character education on scientific essay writing skills. The results of the study show that this approach can improve students' competitiveness and critical thinking skills.

Several innovative learning techniques have also been implemented to improve students' writing skills. Arisman [12] proposed the *Buzz Group* technique that focuses on small group discussions to encourage students' active participation in writing. Meanwhile, St Y and Winarni [13] explored active learning using Indonesian textbooks based on character education as an effort to improve scientific writing skills. Creativity-based techniques have also been applied in writing learning. Cahyani, Nurhadi, and Mentari [14] examined *the Plus-Minus-Interesting (PMI) technique* in improving students' language creativity and writing skills in

elementary school. In addition, Supiani [15] highlighted the effectiveness of collaborative writing techniques in improving students' writing competence by applying the principles of cooperation and social interaction.

Technology-based approaches and cognitive strategies are also gaining attention in recent research. Mayasari and Masruroh [16] tested the *Chain Writing* method in teaching analytical exposition texts for EFL students in Indonesia, while Mulyanah [17] examined the *Group Investigation technique* in improving the writing skills of high school students. Hamamah et al. [18] explore the challenges of academic publications as well as the benefits of AI-based technology in scientific writing, providing new insights into the role of technology in writing education.

Several other studies emphasize the importance of problem-based learning strategies and concept visualization. Pertiwi, Ngadiso, and Drajati [19] showed that the *Dictogloss* technique is able to improve students' understanding of the structure of written texts. Pratiwi, Puspitasari, and Fikria [20] integrate *Mind-Mapping techniques* and the "Writeabout" application in online writing classes, providing an innovative approach to writing learning. Kristyanawati, Suwandi, and Rohmadi [21] examined the application of the *Problem-Based Learning* model to improve students' motivation and skills in writing exposition texts.

In addition, research on structure-based techniques also showed significant results. Kartawijaya [22] examined the effectiveness of the skeleton making technique in improving paragraph writing skills, while [23] discussed the use of *Clustering* techniques in teaching narrative text writing. Umamah and Cahyono [24] explored self-regulation strategies in writing expository essays among Indonesian students, which provides a broader perspective on the influence of cognitive strategies on writing skills.

Although various studies have discussed aspects of writing skills, there are still limitations in the scope of comprehensive interpretation of writing learning trends. A bibliometric analysis using Publish Or Perish and Vosviewer which is comprehensive on research trends in writing education in Indonesia was carried out by researchers to further multiply research data on writing in Indonesia. Although various teaching methods have been studied, researchers see that there are no studies that specifically map the development, publication patterns, and influence of research on the practice of writing education using a bibliometric approach. The study offers new contributions by identifying research gaps, highlighting the most influential methodologies, and providing insights into the integration of technology and pedagogical strategies in the teaching of writing. Thus, the results of this study not only provide an overview of the development of research in the field of writing education but also become a reference for academics and practitioners in designing more effective curricula and teaching methods.

The choice of Semantic Scholar as the primary data source in this study is based on its comprehensive coverage, advanced semantic indexing, and strong integration of citation and contextual analysis. While previous studies have examined various aspects of writing skills, few have provided a holistic interpretation of writing education trends in Indonesia. By using Publish or Perish and VOSviewer in combination with Semantic Scholar data, this research expands the bibliometric dataset and enables a more nuanced mapping of publication patterns, research evolution, and thematic connections. Unlike databases that rely solely on keyword frequency, Semantic Scholar applies artificial intelligence to analyze conceptual relationships among studies, making it highly suitable for identifying emerging themes, methodological influences, and technological integration in writing pedagogy. Therefore, the use of Semantic Scholar allows this study to contribute novel insights into research development, bridge existing gaps in writing education literature, and offer valuable references for scholars and educators in enhancing curriculum design and teaching practices.

Based on the literature review that has been conducted, this study will analyze research trends and patterns in writing education in Indonesia using a bibliometric approach. The results of this analysis are expected to provide deeper insights into the direction of research in the field of writing education, reveal research gaps that have not been widely explored, and provide recommendations for academics and practitioners in developing more innovative and effective writing learning strategies. Thus, this research not only contributes to scientific mapping but also to improving the quality of writing education in Indonesia.

2. RESEARCH METHODS

This research method uses a bibliometric approach using Publish or Perish (PoP) and VOSviewer tools to analyze research trends in the field of writing education. This method refers to previous research that has proven the effectiveness of bibliometric analysis in identifying publication patterns, author collaboration networks, and the development of research topics in various disciplines [25], [26].

The first stage in this study is data collection using Publish or Perish (PoP). PoP is a software that allows the extraction of publication metadata from various academic databases, such as Google Scholar, Scopus, and Web of Science [25]. The data collected includes the number of publications, the number of citations, the h index, and the distribution of publications based on the year and source of the journal. By using PoP,

this study can identify articles that have a great influence in the field of writing education and analyze the development of publications in a certain period of time [7].

Once the data is collected, the next stage is data analysis and visualization using VOSviewer. This software is used to conduct bibliometric mapping to reveal the network of collaboration between authors (co-authorship analysis), citation relationships between articles (co-citation analysis), and distribution of research topics based on keywords that often appear (keyword co-occurrence analysis) [26]. This analysis provides an overview of the structure and development of research in writing education, as well as identifying research areas that are still rarely explored [9]. By integrating PoP and VOSviewer, this research can provide comprehensive insights into the writing education research landscape in Indonesia. This approach not only helps in understanding publication patterns and research trends, but also provides strategic recommendations for researchers and academics in developing studies in this field in the future.

3. RESULTS AND DISCUSSION

3.1 Tabel Metrics

Tabel 1. Publish or Perish Tabel Metric

Metric	Value
Reference Date	2025-01-31 17:21:34 +0700
Publication Years	1900-2025
Citation Years	125 (1900-2025)
Papers	3567
Citations	10333
Citations/year	82.66 (acc1=574, acc2=263, acc5=74, acc10=20, acc20=8)
Citations/paper	2.90
Citations/author	6081.45
Papers/author	2263.35
Authors/paper	2.21/2.0/1 (mean/median/mode)
Age-weighted citation rate	2049.33 (sqrt=45.27), 1077.93/author
Hirsch h-index	40 (a=6.46, m=0.32, 2934 cites=28.4% coverage)
Egghe g-index	60 (g/h=1.50, 3645 cites=35.3% coverage)
PoP hl,norm	29
PoP hl,annual	0.23
Fassin hA-index	14

This dataset includes scientific publications that have been published over a span of 125 years, from 1900 to 2025, with a total of 3,567 papers that have been cited 10,333 times. The average number of citations per year reached 82.66, with the number of citations being higher in recent years. A total of 574 citations were recorded in the past year, 263 citations in the last two years, and 74 citations in the last five years, indicating that the research in this dataset is still gaining attention in the academic community, although the citation trend tends to decline in the long term.

In terms of publication quality and impact, each paper in this dataset had an average of 2.90 citations, indicating that most publications received attention from other researchers. The average citations per author reached 6,081.45, which reflects the contribution of individuals to the total number of citations collected. When viewed from the number of authors in each publication, there are an average of 2.21 authors per paper, with a median of 2.0 and mode 1. This suggests that the majority of research was conducted collaboratively, although there were also a number of publications written by a single author.

The academic impact of these publications can be measured through a variety of bibliometric indices. The Hirsch index or h-index has a value of 40, which means that there are 40 papers that have each been cited at least 40 times. This value shows that there are a number of publications that have a great influence

in the scientific community. The a factor with a value of 6.46 indicates that the average citations from papers included in the h index are quite high, while the m factor with a value of 0.32 indicates a stable but not too fast growth of the h index. A total of 2,934 citations, or about 28.4% of the total citations, came from papers included in this h index.

In addition, the Egghe index or g-index is valued at 60, indicating that the 60 most cited papers have a large cumulative total citation, with 3,645 citations covering 35.3% of the overall citations. A comparison between the g-index and the h-index of 1.50 indicates that papers with a very high number of citations play an important role in improving the academic impact of these datasets. Other indices such as PoP hl,norm with a value of 29 show a normalized h-index based on the number of authors, while PoP hl,annual with a value of 0.23 reflects a relatively stable growth in academic impact over time. The HA Fassin Index of 14 provides a further picture of the contribution of individuals in joint publications.

In addition to traditional citation indexes, this analysis also considers the Age-weighted Citation Rate (AWCR) to measure the impact of publications by taking into account the age of citations. The AWCR in this dataset has a value of 2,049.33, with a square root of 45.27, which indicates that the newer papers are still receiving attention and are actively cited. On an individual scale, the AWCR value per author reached 1,077.93, which shows that each author's contribution to age-weighted citations is quite high.

Although the growth of citations tends to be stable, this dataset shows that newer studies still have academic appeal, as evidenced by high AWCR scores. This shows that the scientific contributions made in this dataset are still relevant in the development of science. Thus, this dataset reflects a significant contribution to the academic community with a considerable level of influence, both on an individual and collective scale.

Tabel 2. Summary of Journal Productivity (citation)

Citation Metric	Value
Total Citations	10333
Citations per Year	82.66 (acc1=574, acc2=263, acc5=74, acc10=20, acc20=8)
Citations per Paper	2.90
Citations per Author	6081.45
Age-Weighted Citation Rate	2049.33 (sqrt=45.27), 1077.93/author

This dataset reflects the academic impact of scientific publications with a total of 10,333 citations that have been collected during the time period covered in the analysis. The average annual citation rate reached 82.66 citations per year, with an accumulatory distribution that showed a downward trend over time. In the last year, there have been 574 citations, in the last two years 263 citations, in the last five years 74 citations, in the last ten years 20 citations, and in the last twenty years 8 citations. These figures suggest that the research in this dataset is still gaining academic attention, especially in recent years, although citations have declined over a longer period.

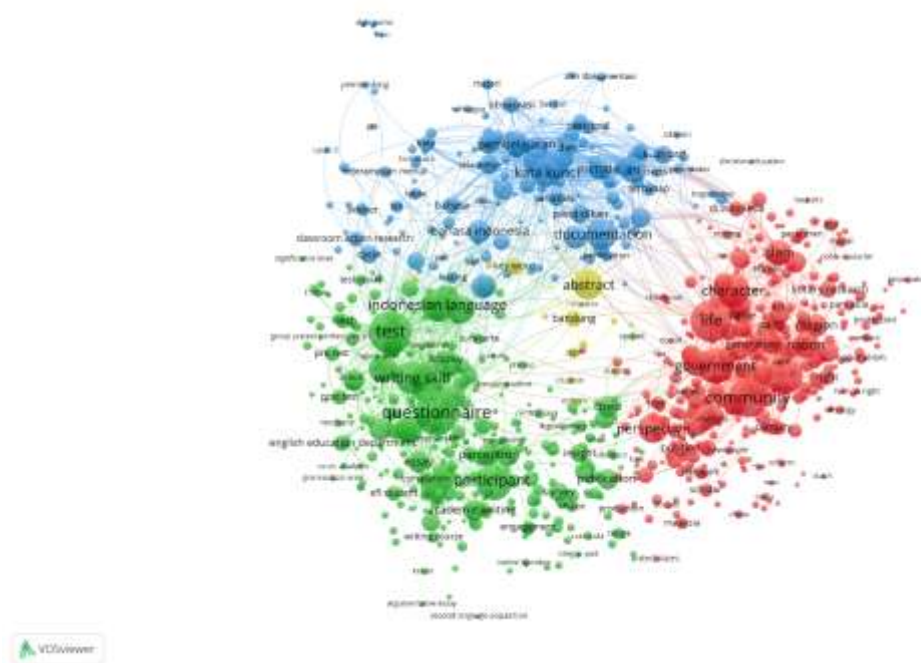
In terms of the impact of individual publications, each paper obtained an average of 2.90 citations, which indicates that the research in this dataset is getting a fairly good level of readability and use in the scientific community. When viewed from the perspective of individual contributions, on average, each author has generated 6,081.45 citations, which indicates a very high level of engagement in publications and significant academic influence.

Additionally, the Age-Weighted Citation Rate (AWCR) metric provides deeper insights into how citations evolve over time. With a score of 2,049.33, the AWCR shows that many of the publications in this dataset remain relevant over a longer period. The square root value of the AWCR of 45.27 also indicates that most of the citations come from papers that have remained in the spotlight of academics over the years. On an individual scale, the AWCR per author of 1,077.93 reflects significant academic contributions to the scientific community.

These bibliometric findings reveal a contrast between the strong academic attention reflected in citation data and the relatively limited application of research outcomes in actual educational practice. Although the dataset demonstrates sustained scholarly engagement—evidenced by a high cumulative citation count and long-term relevance through AWCR—the translation of these studies into classroom innovation remains uneven. In many Indonesian educational settings, especially outside major universities, writing pedagogy still relies on conventional approaches with minimal integration of data-driven or technology-enhanced methods identified in academic literature. This indicates a research–practice gap, where the abundance of

theoretical and methodological advancements has not yet fully transformed instructional realities. Therefore, the citation patterns not only highlight the intellectual influence of writing education research but also emphasize the urgent need for stronger dissemination channels, practitioner-oriented research collaboration, and the adaptation of academic findings to real-world classroom contexts.

3.2 Network Visualizaton Model Analisys



Gambar 1. Network Visualizaton

The *network visualization* in this analysis describes the relationship between nodes based on *link strength* and clustering. Each term in the dataset is represented as a node, with a size that reflects the frequency of its occurrence in the study (*weight<Occurrences>*) or the strength of its relationship to other terms (*weight<Total link strength>*). The colors on each node indicate their thematic group, while the *edges* between the nodes represent the relationships between terms, with a thickness proportional to the strength of the connections between concepts.

Within this network structure, there are four main clusters that emerge, each with its own characteristics and patterns of relationships. Cluster 1 (General Society & Community) focuses on social concepts such as "*community*," "*government*," and "*society*," which act as a hub of relationships with many links to various disciplines. Terms such as "*human rights*," "*law*," and "*economy*" show a strong connection to people's policies and lives. This pattern of relationships indicates that research in the social field discusses many aspects of community and governance.

Cluster 2 (Academic & Technical Education) describes aspects of education and academic methodology. Keywords such as "*academic writing*," "*feedback*," and "*questionnaire*" indicate a focus on academic skills and scientific research. Nodes such as "*chatgpt*" and "*artificial intelligence*" have links to "*digital literacy*" and "*online learning*," although with connections that are still relatively thin as they have only recently developed in recent research. Dense sub-networks are seen in terms such as "*grammar*," "*error analysis*," and "*writing skills*," indicating that research in these clusters is more technical and education-based.

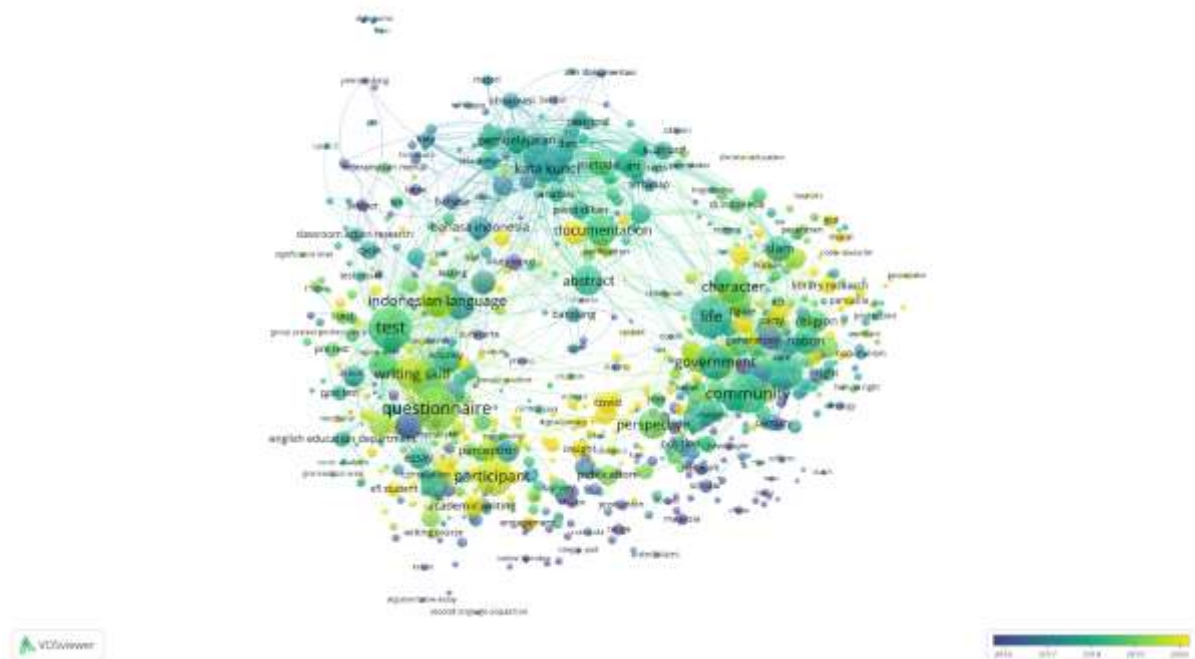
Cluster 3 (Indonesian Research Context) shows research that focuses on the Indonesian language and the context of national education. Nodes such as "*learning*," "*teachers*," "*students*," and "*curriculum*" form strong thematic groups, signaling the focus of research on education in Indonesia. Terms such as "*abstract*" and "*keyword*" indicate a pattern of research methodologies that are often used in Indonesian-language scientific publications. These sub-networks tend to be isolated from other clusters, suggesting that research in Indonesian is poorly integrated with global literature.

Meanwhile, Cluster 4 (Publication Metadata) contains terms related to the administrative aspects of scientific publications, such as "*ISSN*," "*citation*," and "*publication*." Nodes in these clusters tend to be peripheral, with weaker links to other clusters, suggesting that the metadata aspect of publications is less of a focus in major academic discourses.

In terms of visual structure, there are several key elements that can be observed. Central hubs such as "community," "error," and "learning" are the largest nodes due to their high frequency and association with other terms. Bridges between clusters (bridging terms) such as "digital literacy" that connect the "education system" and "Indonesian" show that there are opportunities for cross-disciplinary collaboration. Meanwhile, isolated groups such as in Cluster 3 indicate a lack of integration of Indonesian-language research with global research.

The network visualization in this study reveals the structural dynamics of knowledge within Indonesian writing education research. The four identified clusters—*General Society & Community*, *Academic & Technical Education*, *Indonesian Research Context*, and *Publication Metadata*—illustrate how scholarly discussions range from social and policy-oriented themes to technical and methodological aspects of writing instruction. The presence of bridging nodes such as "digital literacy" and "artificial intelligence" indicates emerging opportunities for interdisciplinary collaboration, particularly between educational and technological domains. However, the relative isolation of the Indonesian-language cluster suggests limited integration with global academic discourse, highlighting the need for greater international collaboration and publication efforts. Overall, these findings imply that while Indonesian writing education research demonstrates thematic diversity and growing technological awareness, it still requires stronger global connectivity and methodological innovation to advance its academic impact.

3.3 Overlay Visualization Model Analysis



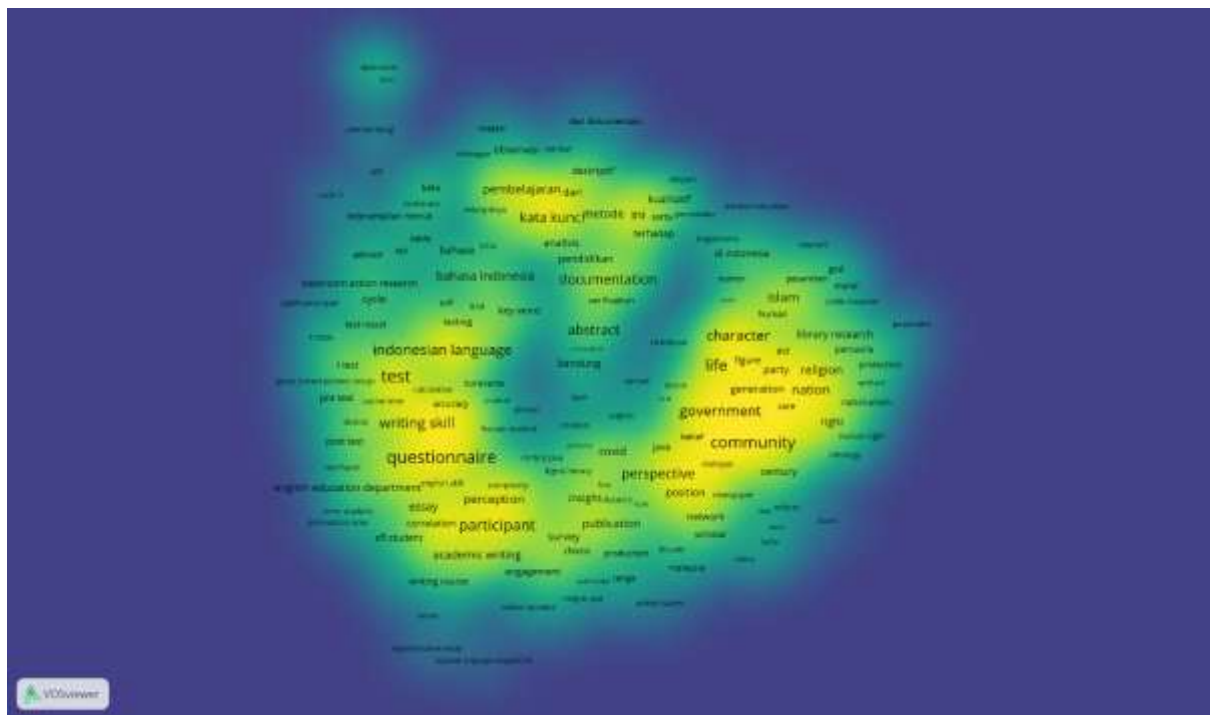
Gambar 2. Overlay Visualization

The dataset consists of 880 terms grouped into four clusters based on x, y coordinates, linguistic context, and thematic focus. The first cluster covers the topic of society and community in English, with key terms such as "community," "government," and "human rights." This cluster has an average temporal trend of the 2016–2019 publication year, indicating that this topic remains relevant in social and global discussions. In addition, terms related to social structures such as "family" and global issues such as "globalization" are also found in this cluster.

The second cluster focuses on academic education and technology, covering terms such as "academic writing," "artificial intelligence," and "digital literacy." With an average publication year of 2019–2023, this cluster represents recent research trends, especially with the emergence of terms like "chatgpt" in 2023.73. Terms in these clusters are often associated with pedagogical challenges (e.g., "anxiety" and "efficacy") as well as technological tools such as "google classroom." Meanwhile, the third cluster contains terms in Indonesian related to local educational research and practices, with a focus on methodologies such as "data analysis" and "observation." The temporal trend of this cluster averaged from 2016 to 2018, reflecting the stability in Indonesian education research.

The bibliometric mapping of 880 terms across four clusters provides a comprehensive overview of how Indonesian writing education research is positioned within broader academic and technological discourses. The first cluster reflects the foundational relationship between community, governance, and education, demonstrating that social dimensions remain central to understanding the role of writing in civic and cultural contexts. The second cluster, dominated by academic and technological keywords, reveals a shift toward digital and AI-assisted pedagogy, marking a transformative phase in how writing skills are taught and assessed in the digital age. The emergence of terms such as “ChatGPT” and “digital literacy” underscores the increasing integration of artificial intelligence into educational practices. Conversely, the third cluster highlights the localized nature of Indonesian-language research, focusing on practical classroom methodologies but remaining relatively isolated from global networks. The fourth cluster’s emphasis on publication metadata indicates the ongoing institutionalization of academic production rather than thematic exploration. Altogether, this analysis implies that Indonesian writing education research is evolving from traditional pedagogical approaches toward technology-enhanced and globally oriented practices, though greater cross-linguistic and cross-disciplinary integration is still needed to strengthen its international relevance and scholarly influence.

3.4 Density Visualization Model Analysis



Gambar 3. Density Visualization

Network visualization in this analysis describes the relationship between keywords in four main clusters, namely (1) Social Sciences, Community, & Policy, (2) Education, Language, & Academic Methodology, (3) Indonesian Language Research & Local Context, and (4) Technical & Research Methodology. Each cluster has a featured keyword that indicates the main focus of the research as well as its relevance to a particular academic field. The relationships between nodes in this visualization describe the relationships between concepts based on *total link strength* and *occurrences*, which can provide insight into evolving research trends and directions.

Cluster 1: Social Sciences, Community, & Policy highlights research that focuses on social sciences, policy, and community dynamics. Key keywords such as community, government, and society show that community and governance issues are the center of attention. The keywords law, human rights, and democracy reflect aspects of law and human rights in the social context, while education system, policy, economy, and health show the relationship between public policy and the education, economy, and health sectors. The network visualization in this cluster shows that the community is a central point that connects various topics, indicating that social studies are mostly community-centered as the main subject of analysis.

Cluster 2: Education, Language, & Academic Methodology focuses on educational research, language teaching, and academic methodology. The keywords academic writing, EFL student, and grammar show the dominance of topics about academic writing skills and English language learning. In addition, keywords

such as character education, teacher training, and classroom action research highlight the importance of teacher training and character education in the education system. The keywords curriculum and blended learning indicate trends in curriculum innovation and technology-based learning, especially after the pandemic. Network visualization shows that academic writing and teacher training have high connectivity in this cluster, indicating that improving academic competence and teacher professionalism is the main focus in educational research.

Cluster 3: Indonesian Language & Local Context Research reflects research that uses Indonesian or addresses the context of education in Indonesia. Keywords such as abstract, this study, and Indonesian show a common pattern in local research methodologies, while teachers, students, and curriculum signify a focus on the national education system. The keywords of research methods, research data, and state universities show that academic research in Indonesia is mostly carried out within the scope of universities. In addition, elementary school is one of the topics that is often discussed, indicating that there is a great concern for basic education. In the network visualization, teachers and students emerge as key nodes that have a close relationship with other keywords, reflecting that research in the Indonesian context is very centered on the interaction between educators and learners.

Cluster 4: Technical & Methodology Research contains research related to technical and methodological aspects in scientific publications. Keywords such as abstract, citation, and ISSN highlight the importance of scientific article structure and citation analysis. The keywords Huberman, research design, and SPSS indicate the data analysis methods used in qualitative and quantitative research. In addition, the keywords validity, quasi experimental, and literature review show the validity aspects of research instruments and experimental methods in academic studies. The network visualization shows that abstract and research design have a central position in this cluster, which indicates that the technical aspects of research are an important foundation in the development of academic research.

In terms of publication trends, Clusters 1 & 3 are dominated by research published between 2017-2019, showing that social and educational issues in Indonesia have been a steady concern in recent years. Cluster 2 has experienced an increasing trend after 2020, especially with the emergence of topics such as blended learning and academic writing that are increasingly relevant in the digital era. Cluster 4 shows an increase in publications between 2018-2021, reflecting the growing use of data analysis methods and awareness of the importance of academic standards in scientific publications.

Overall, this network visualization provides insight into how research in various fields is interconnected and evolving. Clusters 1 & 3 have strong links in the social and educational fields, especially in the context of public policy and the national education system. Cluster 2 has a close relationship with Cluster 3, especially in curriculum studies and teacher training. Meanwhile, Cluster 4 is more separate but serves as a methodological foundation for research in all other clusters. By understanding the relationships between keywords in this visualization, researchers can identify research trends, find research gaps that have not been widely explored, and see the potential for future academic collaboration.

3.5 10 Dominant Keywords Based On Weight Value

Tabel 3. 10 Dominant Keywords Based On Weight Value

Peringkat	Keywords (labels)	Number of occurrences (weight<Occurrences>)
1	writing skill	286
2	abstract	243
3	sentence	179
4	essay	154
5	academic writing	147
6	publication	140
7	literature study	135
8	feedback	130
9	literature review	114
10	library research	106

This keyword network analysis shows a major focus on academic and research writing skills, especially in the context of essay writing, abstract, and writing skills development. Keywords such as "writing skill" ranked first with 286 occurrences, indicating that the topic of writing skills is the main concern in this study. Good writing skills are very important in the world of education, especially in academic writing. Followed by "abstract" appearing 243 times, this word reflects the importance of clear and effective abstract writing in a scientific paper. The abstract is a very important part because it provides an overview of the research or essay written.

In addition, the keyword "sentence" that appeared 179 times showed that the formation of the right sentence is also a concern in academic writing. Good and clear sentences are an important part of producing easy-to-understand writing. Then, the words "essay" and "academic writing" appear 154 and 147 times, respectively, indicating the importance of writing well-structured essays and scientific papers in the academic world. This skill is strongly related to the ability to structure arguments and information in logical and organized writing.

The keyword "publication" that appears 140 times shows the relevance of publication in the academic world. The publication of scientific papers, whether in the form of journals or articles, is an important goal for many researchers. In addition, "literature study" and "literature review" with 135 and 114 occurrences, respectively, illustrate the importance of literature study and literature review in a study. This indicates that academic research often begins with an in-depth study of the literature to build a knowledge base before conducting further experiments or analysis. In addition, "feedback" with 130 occurrences reflects that the process of providing feedback or constructive criticism is very important in improving the quality of scientific work. Finally, the keyword "library research" which appears 106 times shows that many studies rely on library resources available in libraries as the main reference material. This indicates that research in this context relies on data collection from previously published sources.

3.6 10 Most Cited Articles

Tabel 4. 10 Dominant Keywords Based On Weight Value

No	Writer	Year	Title	Publisher	Number of Citation	Citation per Year
1	Afip Miftahul Basar	2021	Problematika Pembelajaran Jarak Jauh Pada Masa Pandemi Covid-19	Estudios Demográficos y Urbanos	202	50.5
2	M. Irfan, Betty Kusumaningrum, Y. Yulia, S. Widodo	2020	Challenges During the Pandemic: Use of E-Learning in Mathematics Learning in Higher Education	Infinity Journal	154	30.8
3	P. Purnawarman, Susilawati Susilawati, Wachyu Sundayana	2016	The Use of Edmodo in Teaching Writing in a Blended Learning Setting	Indonesian Journal of Applied Linguistics	135	15
4	Dian Arief Pradana, M. Mahfud, C. Hermawan, H. D. Susanti	2020	Nasionalism: Character Education Orientation in Learning Development	<i>Budapest International Research and Critics Institute-Journal (BIRCI-Journal)</i>	121	24.2
5	N. Nuraini, Akhmad Riadi, Muhamad Chairul Basrun Umanailo, M. Rusdi, Tri Kurnia Badu, S. Suryani, Irsan Irsan, Irwan Ismail, Sukainap Pulhehe, V. R. Hentihu	2019	Political Policy for The Development of Education	International Journal of Scientific & Technology Research	116	19.33
6	A. Saleh, M. Mujahiddin	2020	Challenges and Opportunities for Community Empowerment Practices in Indonesia during the Covid-19 Pandemic through	Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences	110	22

			Strengthening the Role of Higher Education			
7	M. Ghufon, Fathia Rosyida	2018	The Role of Grammarly in Assessing English as a Foreign Language (EFL) Writing	Lingua Cultura	103	14.71
8	Zamzami Zainuddin, Habiburrahim, Safrul Muluk, Cut Muftia Keumala	2019	How Do Students Become Self-Directed Learners in The EFL Flipped-Class Pedagogy? A Study in Higher Education	Indonesian Journal of Applied Linguistics	100	16.67
9	M. Ghufon, Siti Ermawati	2018	The Strengths and Weaknesses of Cooperative Learning and Problem-based Learning in EFL Writing Class: Teachers and Students' Perspectives	International Journal of Instruction	98	14
10	I. Dirgeyasa	2016	Genre-Based Approach: What and How to Teach and to Learn Writing	English Language Teaching	96	10.67

The topics in this list of articles reflect research trends that are widely studied and cited in various fields of education, especially related to writing learning, technology in education, and learning challenges during the pandemic. Based on bibliometric analysis, these articles can be categorized into several main subjects. First, distance learning and its challenges are discussed in the research Basar [27] and Irfan et al. [25], which reveal the obstacles to the implementation of e-learning in primary and higher education during the pandemic. Second, technology in language learning was researched by Purnawarman et al. [26] and Ghufon & Rosyida [28], who highlighted the role of digital platforms such as Edmodo and Grammarly in improving EFL students' writing skills. Third, the teaching and learning strategies of writing are analyzed by Dirgeyasa [29] and Ghufon & Ermawati [30], who discuss genre-based approaches and collaborative learning methods in teaching writing. Fourth, character education and education policy are the focus of the research of Pradana et al. [31] and Nuraini et al. [32], which examine the role of education in shaping character and the influence of political policies in the development of the education system. Finally, flipped classroom-based learning was researched by Zainuddin et al. [33], who reviewed student independence in a reverse learning model. These articles have a significant impact and are widely cited because they discuss fundamental issues in education that continue to develop, both in pedagogy, technology, and education policy aspects.

The research trends in Indonesia that are widely cited are spread across the range from 2016 to 2021, with productivity peaks occurring in 2020 and 2021; However, the number of citations obtained is still in the range of hundreds and has not yet reached thousands, indicating that studies in this field continue to develop but have not fully dominated the global literature. Indonesia needs to increase the publication and dissemination of written information extra so that the research produced is better known and has a global impact. This can be done through increased access to reputable international journals, collaborations with foreign researchers, and optimization of the use of academic platforms such as Google Scholar, ResearchGate, Web Of Science, and Scopus. In addition, promotional strategies such as international conferences, online seminars, and the use of academic social media can help expand the reach of research results. The government and educational institutions also need to support incentive policies for lecturers and researchers to publish their scientific papers in reputable journals and provide training in academic writing and publication strategies. With these steps, Indonesian research can be more competitive and contribute to the development of science globally.

4. CONCLUSION

Writing education plays a crucial role in fostering literacy and communication skills, with research in this area continuing to grow in response to evolving academic and professional demands. Bibliometric analysis using Publish or Perish (PoP) and VOSviewer reveals 3,567 published papers generating 10,333 citations, an average of 82.66 citations per year, and a Hirsch index (h-index) of 40—indicating a moderate but meaningful academic impact. Despite the adoption of innovative instructional techniques such as Buzz Group, Guided Discovery Learning, and Chain Writing, the findings highlight persistent research gaps in pedagogical innovation and implementation effectiveness. These results imply that Indonesia must strengthen its research ecosystem by expanding publication opportunities in reputable journals, promoting international collaborations, and optimizing the use of global platforms such as Google Scholar, Scopus, and ResearchGate. Furthermore, broader dissemination through international conferences, online seminars, and academic social networks can enhance visibility and scholarly engagement. Institutional initiatives—such as publication incentives, academic writing workshops, and strategic mentorship programs—are essential to bridge local and global research landscapes, ensuring that Indonesian writing education research not only evolves domestically but also contributes significantly to international discourse.

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