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Bibliometric Analysis of Curriculum **Publications Indexed in Scopus: Trends** and Future Research Directions

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Bibliometric Analysis of Curriculum Publications Indexed in Scopus: Trends and Future Research Directions

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Abstract

This study presents a bibliometric analysis of Scopus-indexed publications on the Merdeka Curriculum, Indonesia's latest progressive educational framework promoting flexibility and independence in learning. Analyzing publications from 2020 to 2024, the research highlights trends, citations, document types, sources, keywords, affiliations, and visualization trends related to the Merdeka Curriculum. The findings indicate a consistent annual publication growth; publication numbers peaked in 2024, while 2022 recorded the highest citations, reflecting significant interest and impact. Journal articles were the predominant submission type, followed by conference papers, with 15 articles in the AIP Conference Proceedings. Universitas Negeri Malang was identified as the leading institution, with six first-author contributions. VOSviewer visualization revealed three key keyword clusters: students, teachers, and the Merdeka Curriculum. The study also noted a scarcity of publications assessing the Merdeka Curriculum, suggesting a need for future research. Further research should focus on developing and evaluating Merdeka Curriculum assessments. Enhancing international collaboration is recommended to improve research quality and visibility. This study provides a comprehensive overview of the Merdeka Curriculum's academic impact and research focus, aiming to map the scholarly landscape and identify areas for future research to advance educational development in Indonesia.

Introduction

The history of the Merdeka curriculum in Indonesia began with implementing the Curriculum Implementation Guidelines in Special Conditions (Kepmendikbud RI, 2020). This curriculum guideline regulates three recovery options for education due to the COVID-19 outbreak. The three curriculum options are the 2013 Curriculum, the Emergency Curriculum (i.e., the 2013 Curriculum simplified by the Ministry of Education and Culture), and the Merdeka Curriculum (Kepmendikbudristek, 2022). According to Fadhli (2022), in 2021-2022, the 2013 Curriculum, Emergency Curriculum, and Merdeka Curriculum in "Sekolah Penggerak" and vocational schools of excellence are used as references. In the early year of its implementation, several publications indexed by Scopus discussed this policy, including Asfarian et al. (2020), which examines the Merdeka curriculum policy on

the independent campus. Next, (Birofik et al., 2023) examines the readiness of higher education in Indonesia to integrate online learning into the Merdeka Curriculum. Likewise, (Ritonga et al., 2021) He introduces the term "freedom to learn" in his research, which examines managing the yellow book and Arabic language curriculum planning at Islamic boarding schools.

The Merdeka Curriculum is a significant milestone in the development of education in Indonesia. It will enable schools to tailor it to the local context and needs (Suryati et al., 2023), providing flexibility and freedom for Madrasahs and teachers to develop their curriculum and teaching methods better suited to their students' needs (Dian et al., 2023). This curriculum may lead to real-world issues and foster critical thinking and teamwork skills, instilling hope in the audience about the future of education in Indonesia (Birofik et al., 2023; Saputra et al., 2023; Swandana et al., 2023). This curriculum promotes inclusion, flexibility, and responsiveness to learning (Ndari et al., 2023; Sephiawardani & Bektiningsih, 2023). It aligns with the government's vision to produce graduates who can compete globally, instilling confidence in the audience about the curriculum's relevance and effectiveness. The implementation of the Merdeka curriculum marks a crucial shift in the education paradigm in Indonesia, moving away from a one-size-fits-all approach (Dirjen Dikti Kemendikbud, 2020)(Astari et al., 2023)(Cristiana et al., 2023). By giving schools the authority to design curricula, the government recognizes that each educational institution has unique needs and characteristics requiring attention (Mølstad, 2015; Purba et al., 2023). This reflects the spirit of autonomy and empowerment at the core of the Merdeka Curriculum, where schools are expected to become centers of continuous innovation and research to optimize the learning process (Mutmainah & Widhiatama, 2024; B. Yulianto et al., 2023).

The Merdeka Curriculum demonstrates the unwavering commitment of the Indonesian government to strengthen relevant, inclusive, and sustainable education. By providing freedom in curriculum design, the Merdeka Curriculum allows schools to adapt learning approaches to the needs and potential of their students (Taridala et al., 2023) (Samsudi et al., 2024). This creates a dynamic and responsive environment that has the potential to increase student motivation, expand educational accessibility, and promote academic excellence, as well as 21st-century skills (Azhari et al., 2023). This aligns with the concept of independence in the Merdeka curriculum, which involves starting from oneself, exploring ideas, collaborating, reflecting, demonstrating contextually, understanding, connecting materials, and concluding with real action. The strong commitment of the Indonesian government to the Merdeka Curriculum instills confidence in its effectiveness and impact on the education system, inspiring the audience with the potential for positive change.

As part of these reforms, student learning outcome assessment has become crucial to the educational process. The assessment in the Merdeka curriculum aims to provide a more relevant and contextual evaluation of student development. In this context, assessments based on the principles of the Merdeka learning Curriculum will strengthen the implementation of the Merdeka Curriculum as a whole, enabling schools to better cater to the needs of students and the surrounding environment (Kusumo & Chan, 2024; Rusilowati et al., 2024). The Merdeka Curriculum is essential in evaluating student learning outcomes and ensuring the effectiveness of the curriculum in achieving its goals. These reforms highlight the need for assessments beyond mere factual memory, focusing on deeper conceptual understanding and critical thinking skills (Wardani et al., 2023). This shift in assessment of

the Merdeka Curriculum demands that educators develop innovative methods that accurately measure student learning and provide feedback for improvement (Astari et al., 2023; Cristiana et al., 2023; H. Yulianto, 2022). Along with the curriculum changes, the assessment approach has undergone a significant transformation (Rizki & Fahkrunisa, 2022). Evaluation in the Merdeka Curriculum is divided into several main types (Astari et al., 2023; Hatip, 2023), including Formative Assessment, which is carried out continuously throughout the learning process to provide feedback for students and teachers, helping to adjust learning strategies dynamically (Sadora et al., 2021); Summative Assessment, which is conducted at the end of the learning period to evaluate the overall competencies of students (Poerwanti et al., 2023); Diagnostic Assessment, which is used at the beginning of learning to identify students' early abilities and design appropriate interventions (Shadri et al., 2023); and Authentic Assessment, which focuses on assessing students through tasks that reflect real-world applications of their knowledge and skills (Demirel, 2025; McArthur, 2023; Nieminen et al., 2023; Saher et al., 2022).

Furthermore, given the significance of the Merdeka Curriculum, particularly in Indonesia, the researcher deems it necessary to examine the publication trend of this curriculum in reputable international journals. This is not just a matter of academic interest but a crucial step in supporting government policies related to education in Indonesia. However, according to Scopus data, as of June 20, 2024, there are only 67 documents on the Merdeka Curriculum search in Scopus. Therefore, this article aims to delve into the publication trend of the Merdeka Curriculum. The first aspect to be explored is the number of articles on the Merdeka Curriculum published each year in Scopus-indexed journals. Next, the Scopus-indexed journal and conference that publishes these articles will be identified. The researcher will also examine the authors who have contributed to the publication of the Merdeka Curriculum. Finally, the emergence of keywords related to the trend of Merdeka Curriculum publication in Scopus-indexed journals and proceedings will be analyzed. This emphasizes the urgency and importance of further research and publication on the impact of the Merdeka Curriculum, making the audience feel the need to contribute to this vital area of study.

The researcher conducted a bibliometric analysis to facilitate the final goal of this research. This method is currently trending and is used to explore and analyze large amounts of scientific data (Donthu et al., 2021). Researchers can uncover new insights in a specific field and examine emerging issues using bibliometric analysis(van Eck & Waltman, 2020; Van Eck & Waltman, 2019; VOSviewer, 2021). Bibliometric measurements are also used to select and organize study materials and journals for reference in research development (Donthu et al., 2021; Leung et al., 2017). Previous studies have shown the importance of bibliometrics in tracking the number of articles published each year on a given topic(Gao et al., 2017; van Eck & Waltman, 2014). Therefore, bibliometric analysis plays a significant role in the research development (Donthu et al., 2021; Ninkov et al., 2022). It allows researchers to identify emerging research trends and understand the intellectual landscape within their field of study. Researchers can gain a more comprehensive understanding of research development by utilizing data from the Scopus database. This study analyses research trends and the intellectual landscape surrounding the Merdeka Curriculum context in 2019-2024. Using the Scopus database provides access to a vast amount of relevant scientific literature, which will aid researchers in developing more effective and efficient research strategies.

Method

This quantitative study utilized the Scopus database to gather data using the "Merdeka Curriculum" search keyword within the article title and abstract. The data collection was conducted on June 20, 2024, with a time frame of 2019-2024. The process began by retrieving the documents from the Scopus database, which were saved in RIS format or compatible with reference software such as *Refmanager*. The records were then analyzed using the VOSviewer application for visualization. This app allows for the creation of visual maps that display the relationships between studies based on citations or co-authorship, providing a clearer understanding of the structure and trends in the related literature. The documents were also saved in CSV format and converted to Excel for further analysis. This analysis involved various statistical techniques and data processing methods to identify meaningful patterns, trends, and insights in the data. The relationship map visualization and statistical analysis results were combined and discussed in the results and discussion sections. This dual approach ensured a thorough data analysis, resulting in comprehensive insights into the studied literature. The research design is illustrated in Figure 1.

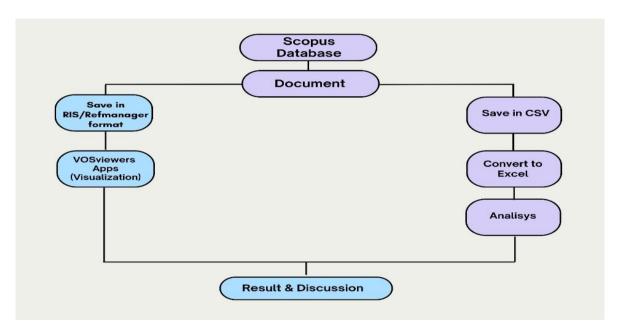


Figure 1. Diagram of the Sorting and Data Collection Process

Results

The 5-year Publication

The graph depicting the publication trend of the Merdeka Curriculum from 2020 to 2024, indexed in the Scopus database, shows a consistent increase in the number of articles published each year (see Figure 2). In 2020, minimal publications on the Merdeka Curriculum indexed by Scopus indicate that this topic was beginning to gain attention from academics, particularly in Indonesia. However, in 2021, there was a slight increase, indicating a growing interest in exploring the concept and implementation of the Merdeka Curriculum. This topic must be disseminated through reputable journals, such as Scopus-indexed journals. From 2021 to 2022, there was a

significant increase in the number of publications on the Merdeka Curriculum indexed by Scopus. This can be attributed to the broader curriculum implementation in schools and universities across Indonesia. This rise reflects the increasing amount of research being conducted to understand and evaluate the effectiveness and impact of the Merdeka Curriculum. In the subsequent years, 2023 and 2024, there will be a drastic increase in the number of publications on the Merdeka Curriculum, with over 30 articles per year in 2024. This trend highlights that the Merdeka Curriculum has become a prominent topic in educational research in Indonesia. The trend lines in the graph demonstrate a strong and consistent growth pattern, indicating that this topic continues to receive significant attention from the academic community. This increase also emphasizes the pressing need to comprehend and optimize the implementation of the Merdeka Curriculum to meet the ever-evolving educational needs.

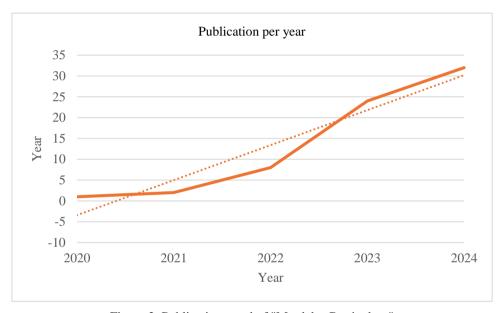


Figure 2. Publication trend of "Merdeka Curriculum"

The Distribution of Merdeka Curriculum based on 5-year Citation

In line with the growing publication trend of the Merdeka Curriculum indexed by Scopus, the citation graph of articles about the curriculum from 2020 to 2024 also shows a noticeable fluctuation in the number of citations per year (see Figure 3). In 2020, there was only 1 citation, indicating that research on the Merdeka Curriculum was beginning to gain recognition from the academic community, particularly in Indonesia. The following year, 2021, saw an increase in citations to 4, suggesting a growing interest and recognition of the relevance of research on the Merdeka Curriculum. The peak of the citation graph was in 2022, with 22 citations received. This sharp increase may be attributed to the publication of the Merdeka Curriculum indexed by Scopus, which had a significant impact and became increasingly attractive for study and in-depth exploration by academics in Indonesia. This year demonstrates that research conducted in or before 2022 has substantially contributed to academic discussions on the Merdeka Curriculum. However, this trend did not continue in the following years. In 2023, the number of citations in articles about the Merdeka Curriculum indexed by Scopus decreased to 13 and sharply declined again to only two citations in 2024. This decline could be due to various factors, including the possibility that research publications are still new and have not received much attention from the academic community. However, the

decrease in citations in recent years highlights the need for further research to maintain the relevance and influence of the Merdeka Curriculum in the academic community, particularly in Scopus-indexed publications.

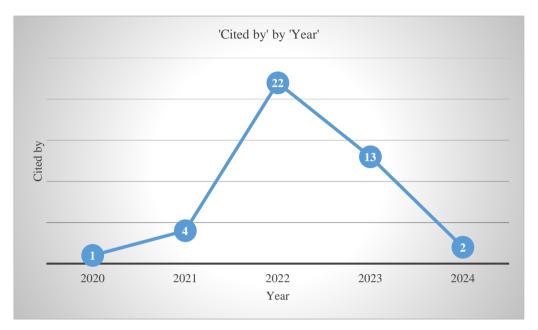


Figure 3. Citation Trends

The Document Types, Sources, Keywords, and Affiliations

The graph depicting the publication types related to the Merdeka Curriculum, indexed by Scopus from 2020 to 2024, reveals a significant increase in the number and variety of publications (see Figure 4).

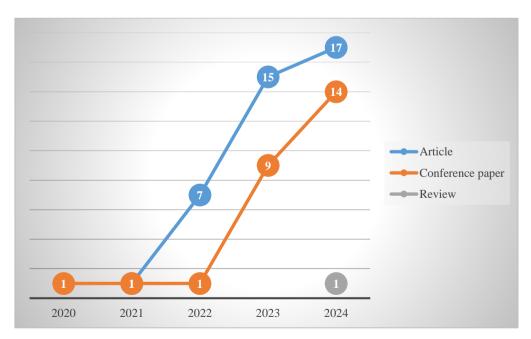


Figure 4. Publication Type Trends

In 2020, only one article and one conference paper were published in a Scopus-indexed journal, indicating that

the Merdeka Curriculum is still in its early stages of introduction and research within the academic community. The situation remained unchanged in 2021, with only one article and one conference paper published in a Scopus-indexed journal. However, in 2022, there was a notable surge in publications related to the Merdeka Curriculum indexed by Scopus, with seven articles and five conference papers. This increase reflects the growing interest of academics and researchers in studying the Merdeka Curriculum and its implementation in the Indonesian education system. The rise in the number of articles on this topic also suggests that it is gaining more attention in academic literature, particularly in Indonesia. The years 2023 and 2024 show a sharper spike in the number of publications indexed by Scopus. In 2023, the number of articles on the Merdeka Curriculum indexed by Scopus jumped to 15, and the conference papers reached 9. In 2024, the number of articles increased to 17, while the number of conference papers sharply rose to 14. This indicates that the topic of the Merdeka Curriculum is receiving widespread attention from various levels of academics and publishers. Moreover, 2024 marks the first time that a review of the Merdeka Curriculum will be published in a Scopus-indexed journal, indicating that a significant amount of research can be comprehensively reviewed. The addition of this review demonstrates the maturity of research in this area and highlights the importance of the Merdeka Curriculum in education discussions in Indonesia.

The publication data for the Merdeka Curriculum has been widely disseminated in various publishers indexed by Scopus from 2019 to 2024. A search using the keyword "Merdeka curriculum" yielded 45 publishers (see Table 1). However, this number was reduced by only considering publishers with more than one article on the topic. The dominant publisher in this dataset is AIP Conference Proceedings, with 15 articles related to the Merdeka curriculum. This suggests that discussions on the Merdeka Curriculum are primarily taking place in conferences focused on science and technology, highlighting the relevance of this topic in the context of STEM education.

Table 1. Publication Source

Source Title	Count of Source title
AIP Conference Proceedings	15
Pegem Egitim ve Ogretim Dergisi	2
Jurnal Ilmiah Peuradeun	2
Journal of Physics: Conference Series	2
Journal of Social Studies Education Research	2
Cogent Education	2
Jurnal Pendidikan IPA Indonesia	2
International Journal of Evaluation and Research in Education	2
International Journal of Learning, Teaching, and Educational Research	2

Additionally, several academic journals such as Pegem Egitim ve Ogretim Dergisi, Jurnal Ilmiah Peuradeun, Journal of Physics: Conference Series, Journal of Social Studies Education Research, Cogent Education, Jurnal Pendidikan IPA Indonesia, International Journal of Evaluation and Research in Education, and International Journal of Learning, Teaching and Educational Research each contain two articles, indicating that discussions about the Merdeka curriculum are also widespread in various disciplines and international platforms. This

demonstrates that the topic of the Merdeka Curriculum is not only important at the national level but has also garnered attention from the global academic community in the broader educational context. However, it is worth noting that most publishers, including well-known names such as Springer, Taylor and Francis Ltd., and SAGE Publications Inc., only have a single entry each, suggesting a specialized focus or lesser representation in this dataset. This diversity in the number of publications reflects various academic interests and the varied roles these publishers play in disseminating research across different fields.

An analysis of the first author's affiliate data on an article about the Merdeka Curriculum, indexed in the Scopus range 2019-2024, shows that Universitas Negeri Malang, led by six authors, has the highest number of first authors (see Table 2). This indicates that the academic community on the campus is actively conducting research related to the Merdeka Curriculum. Universitas Negeri Surabaya stands out with four authors, followed by several universities with three authors, such as Universitas Negeri Yogyakarta, Universitas Pendidikan Indonesia, Universitas Negeri Semarang, and Universitas Negeri Padang. These findings reflect the strong interest and involvement of public universities in Indonesia in further studying the Merdeka Curriculum. Other universities, such as Universitas Negeri Makassar, Universitas Pendidikan Mandalika, and Universitas Muhammadiyah Yogyakarta, each have two authors as first authors, indicating moderate participation in this topic. Additionally, there are many universities with one author as the first author, including Universitas Indonesia and IPB University, which shows that the topic of the Merdeka Curriculum also receives attention from a wide range of diverse institutions. This distribution reflects the collaboration and significant contribution of various educational institutions in Indonesia in advancing the research and development of the Merdeka Curriculum.

Table 2. First Author Affiliation

Institution	Frequency
Universitas Negeri Malang	6
Universitas Negeri Surabaya	4
Universitas Negeri Yogyakarta	3
Universitas Pendidikan Indonesia	3
Universitas Negeri Semarang	3
Universitas Negeri Padang	3
Universitas Negeri Makassar	2
Universitas Pendidikan Mandalika	2
Universitas Sebelas Maret	2
Universitas Muhammadiyah Yogyakarta	2
Telkom University	2
Universitas Negeri Jakarta	2
Universitas Sriwijaya	2

The selected term data has a minimum occurrence rate of 15 times. The number of terms selected has a relevance level above 60%, indicating that these terms frequently appear in publications on the Merdeka Curriculum and demonstrate an intense research focus on critical concepts (see Figure 5). The terms "Student" (176 times) and

"Teacher" (98 times) were the most discussed, with a high relevance of 2.35 and 1.06 respectively. This highlights the central role of students and teachers in implementing this curriculum. "Learning" (79 times) and "Program" (49 times), with a relevance of 1.58 and 1.18, respectively, emphasize the importance of learning processes and educational programs that support the Merdeka Curriculum. "Technology" (25 times, relevance 1.01) also appears significant, demonstrating technology integration into the curriculum. While "Research" (106 times, relevance 0.90) and "School" (73 times, relevance 0.61) reflect a significant interest in the context of research and school environments, they have slightly lower relevance compared to the primary focus on students, learning, and technology. This indicates that research on the Merdeka Curriculum primarily focuses on the student-teacher experience and interaction, learning methods, and the application of technology in education.

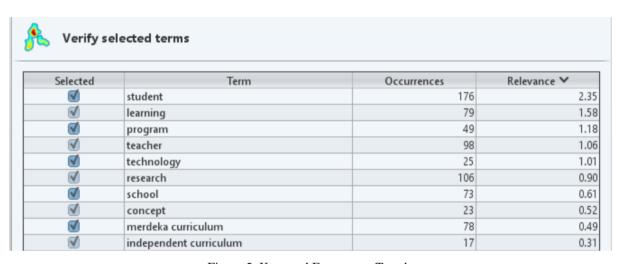


Figure 5. Keyword Emergence Trends

Trend Visualization of Merdeka Curriculum

The graph represents the connectivity network between various concepts in education, analyzed using VOSviewer software (see Figure 6).

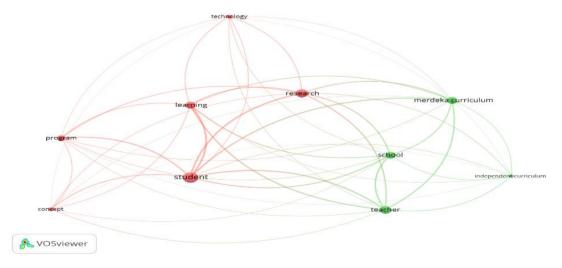


Figure 6. Network Visualization (based on Bibliographic)

The visualization shows that the concepts of "student" and "research" are central to the network, with strong relationships to other concepts such as "learning," "technology," and "program." This indicates that students and research play a crucial role in education, influencing and being influenced by various other aspects. Additionally, "Merdeka Curriculum" and "teacher" form their own closely related groups, reflecting a specific focus on curriculum innovation and the role of teachers in education. This interconnectedness highlights the importance of integrating technology and research in the teaching-learning process and implementing flexible and independent curricula to meet the needs of modern education.

This visualization depicts the density of interconnectedness among concepts in education using VOSviewer (see Figure 7).

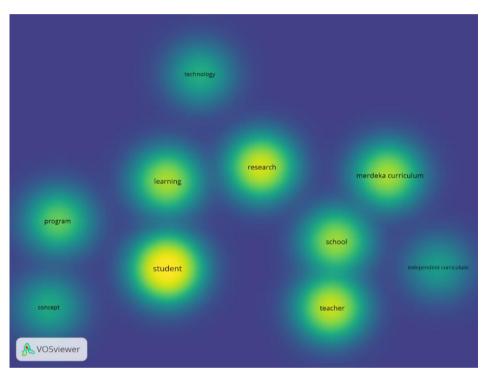


Figure 7. Density Visualization (based on Bibliographic)

The color yellow highlights areas with high connection frequencies. Notably, "student" and "research" stand out with the highest intensity, emphasizing their central role in the educational network. Additionally, "learning," "technology," and "teacher" also exhibit significant density, indicating their close relationship with "student" and "research." In contrast, "Merdeka Curriculum" and "School" show moderate intensity, suggesting their importance in the context of curriculum innovation and school dynamics. While "program," "concept," and "Merdeka Curriculum" have a lower density, they remain relevant in the educational landscape. This visualization provides a comprehensive understanding of the interactions among various elements of education, with students and research as the focus, surrounded by other supporting aspects.

Review of Merdeka Curriculum's Assessment published in Scopus indexed

The most exciting element of the results of this study is that assessment could be addressed more intentionally

concerning the Merdeka Curriculum. In the Scopus database, only one out of 67 journals and conference papers related to evaluating the Merdeka Curriculum. Authors of this article: Wardani N.E., Suwandi S. and Ulya C. Title of the Article - Feasibility Assessment of Merdeka Curriculum in Bahasa Indonesia Digital Textbooks for Class VII Junior High School. This evaluation study uses Indonesian digital textbooks designed to implement the Merdeka curriculum for grade VII. The study uses a qualitative descriptive method to analyze the content collected from several sources, especially digital books provided by Indonesian Readers MECRTI Education and PT. Erlangga Indonesia (PTEI). The study results reveal that the two textbooks contain learning materials such as descriptive, narrative, procedural, response, news, and letters. However, there are significant differences between the two textbooks. For instance, books published by MECRTI cover learning objectives but do not specify learning outcomes, while books published by PTEI include both. Additionally, digital textbooks from PTEI are equipped with QR codes that allow easy access to learning media and resources. In contrast, books from MECRTI are only available in e-book form and do not provide QR codes.

The evaluation of the feasibility of digital textbooks in this article shows that both textbooks are feasible for use in learning. However, PTEI textbooks show better performance than MECRTI textbooks. This feasibility includes sophistication, contextuality, relevance, creativity of supporting materials, linguistic aspects, and overall structure (opening, content, and closing). In terms of material presentation, textbooks from PTEI are considered superior because they include specific learning outcomes and are equipped with QR codes for easy access to additional learning resources. This research highlights the importance of continuous review and improvement of the quality of digital textbooks to enhance educational standards in Indonesia. The contribution of higher education academics is crucial in ensuring the quality and usability of these digital textbooks for students and teachers.

Conclusion

The findings of this study exposed the research trend analyzing 2019-2024 Scopus-indexed publications with a keyword "Merdeka Curriculum" search on title and abstract, which has been growing year by year. 2020 was a turning point as the Indonesian Ministry of Education and Culture issued a Merdeka Curriculum agenda. The following years showed a dramatically increasing number of Scopus-indexed publications, reaching its peak in 2024. The year 2022 observed the maximum number of citations, indicating high interest and impact in research related to the Merdeka Curriculum. The most common submission is a journal article, followed by conference papers. There were 15 articles from AIP Conference Proceedings, while open-access journal publication output was still limited. Universitas Negeri Malang became the largest in the distribution of first-author affiliations, holding six authors as the main article contributors on the Merdeka Curriculum indexed by Scopus 2019-2024. VOSviewer visualization also reveals that students, teachers, and the Merdeka Curriculum are associated with three clusters of keywords related to the Merdeka curriculum. Also, very few publications on the assessment of the Merdeka Curriculum indexed in Scopus were identified in this study. Consequently, further research should focus on developing and accessing Merdeka Curriculum assessments. In addition, further research should address implementation levels of the Merdeka Curriculum across the nation's education levels and its impacts on students' achievement. Moreover, it is recommended that more researchers develop international collaboration to enhance research quality and visibility on the Merdeka Curriculum. As a result, the research will significantly benefit the

development of Indonesia by enabling a clearer understanding of how the Merdeka Curriculum is formulated.

Recommendations

Further research is highly recommended to explore the aspects of assessment in the Merdeka curriculum more deeply. The development of innovative assessment methods that reflect flexibility and a student-based approach is a priority, given the need for relevant and contextual evaluations. In addition, it is essential to assess the impact of implementing the Merdeka Curriculum on student achievement at various levels of education, from elementary school to college. This research must also consider the diversity of local needs to provide solutions suitable for conditions in multiple regions. As part of the strengthening strategy, collaboration between domestic and foreign researchers must be increased to broaden horizons and improve the quality of research results. The results of this collaboration can help increase the global visibility of research on the Merdeka Curriculum and contribute to developing a more inclusive and sustainable education.

To strengthen the implementation of the Merdeka Curriculum, the publication of scientific articles in open-access journals needs to be increased to ensure wider dissemination of research results. Researchers are also expected to focus on developing technology-based learning models to support the flexibility of this curriculum. In addition, it is essential to study teachers' readiness to implement the Merdeka Curriculum, especially in designing 21st-century skill-oriented learning. Future research also needs to evaluate the role of technology in supporting the successful implementation of the curriculum, including integrating digital tools for more adaptive learning. Overall, the evaluation of the effectiveness of the Merdeka Curriculum needs to be carried out periodically to ensure that this policy's main objectives are achieved. Thus, the development of the Merdeka Curriculum can continue to be perfected in line with the changing needs of national and global education.

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