

A bibliometric review of critical multiliteracy research in elementary education

Elmiati¹✉, Nurwalidainismawati², Sri Suryaningsih³, Tiffany Shahnaz Rusli⁴

¹²³STKIP Harapan Bima, Indonesia

⁴Universitas Cenderawasih, Indonesia

¹Email: elmiatiaridyelmiati@gmail.com

²Email: nurwalidainismawati@habi.ac.id

³Email: srisuryaningsih@habi.ac.id

⁴Email: tiffanyshahnaz@fkip.uncen.ac.id



(✉ Corresponding Author)

Abstract

This study aimed to analyze the development of critical multiliteracy research in elementary education through a bibliometric review approach. The data were retrieved from Google Scholar through Publish or Perish using keywords related to critical multiliteracy and elementary education. A total of 430 publications published between 2020 and 2026 were included in the analysis after the screening process. The bibliometric analysis was conducted using Microsoft Excel and VOSviewer to identify publication trends, influential publications, keyword co-occurrence, and thematic evolution. The findings revealed that critical multiliteracy research has shown a progressively increasing trend, with the highest number of publications recorded in 2025 (88 publications; 20.47%) and the lowest in 2026 (39 publications; 9.07%). The co-occurrence network analysis identified six major research clusters, with “multiliteracy,” “pedagogy,” and “practice” emerging as the dominant themes within the research landscape. Furthermore, the overlay visualization demonstrated a shift in research focus toward digital literacy, multiliteracies pedagogy, and technology-supported learning environments. The study concludes that critical multiliteracy research in elementary education continues to evolve dynamically in response to educational transformation and the increasing demand for 21st-century literacy competencies. The findings provide valuable insights for researchers, educators, and curriculum developers in understanding current research trends and identifying potential directions for future studies.

Keywords: critical multiliteracy; elementary education; bibliometric review; literacy pedagogy; digital literacy

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Contribution to Literature: This study provides a comprehensive bibliometric mapping of critical multiliteracy research in elementary education, highlighting publication trends, dominant themes, and emerging topics related to digital literacy and multimodal pedagogy while identifying future research opportunities in 21st-century literacy learning.

1. Introduction

Literacy has become one of the fundamental competencies required in 21st-century education, particularly in elementary education, where students begin to develop cognitive, communicative, and critical thinking skills. In contemporary educational contexts, literacy is no longer limited to the ability to read and write conventionally but has evolved into a broader and more complex concept involving multiple forms of communication, media, and meaning-making processes. The development of digital technology, multimodal communication, and information accessibility has transformed how students interact with texts and construct knowledge in learning environments. Literacy practices are closely related to language skills and are influenced by cultural contexts, communication media, and social interaction processes (McShane, 2011; Weigel et al., 2006). In line with this perspective, multiliteracy emerged as an educational concept emphasizing the integration of linguistic, visual, digital, and contextual dimensions in learning activities (Kalantzis & Cope, 2008; Mills, 2009).

The concept of multiliteracy has gained increasing attention in educational research because it encourages students to become active meaning-makers through critical engagement with various forms of texts and media. Multiliteracy learning is not merely focused on reading ability but also on critical thinking, communication, collaboration, and creativity in interpreting information (Ahmadi & Ibda, 2019; Cope & Kalantzis, 2013). In elementary education, multiliteracy pedagogy is considered highly relevant because students are exposed to diverse learning resources, including printed texts, visual materials, digital content, and interactive media. The implementation of multiliteracy learning can support students in developing reading comprehension, conceptual understanding, and higher-order thinking skills (Abidin, 2017). Furthermore, multiliteracy approaches also encourage inquiry-based learning and student-centered instructional practices that are aligned with current educational demands (Alghamdi & El-Hassan, 2016).

Within the broader framework of multiliteracy, critical multiliteracy has emerged as an important pedagogical approach that emphasizes students' ability to critically analyze information, evaluate perspectives, and construct meaning from diverse multimodal texts. Critical multiliteracy learning enables students to engage scientifically and analytically with information while simultaneously strengthening communication and interpretation skills (Alexander et al., 2016; Allison & Goldston, 2018). In elementary classrooms, this approach is increasingly implemented to improve reading comprehension and encourage students to become more reflective and independent learners. Previous studies have shown that critical multiliteracy learning positively influences students' reading comprehension abilities and learning engagement (Maesaroh & Muzayyin, 2022). Similarly, teachers who apply multiliteracy-based instruction tend to report positive responses toward classroom interaction and literacy development processes (Kangas & Rasi, 2021; Usanova & Schnoor, 2021).

The growing integration of technology and multimodal communication in elementary education has also contributed to the expansion of multiliteracy research in recent years. Studies have increasingly explored the relationship between multiliteracy, digital literacy, online learning, multimodal learning environments, and language development (Holloway, 2021; Lee et al., 2021). This development indicates that critical multiliteracy research is no longer confined to traditional literacy instruction but has evolved into

broader discussions involving educational technology, student engagement, and 21st-century learning competencies. In addition, the increasing use of digital platforms and interactive media in elementary classrooms has accelerated the need for pedagogical models capable of supporting students' critical and multimodal literacy practices (Hillesund et al., 2022; Warner & Dupuy, 2018).

Although studies related to critical multiliteracy in elementary education have continued to grow, most previous research has primarily focused on classroom implementation, experimental studies, and students' reading comprehension outcomes. Existing studies generally emphasize the effectiveness of multiliteracy-based learning models in improving literacy skills, critical thinking, and student participation in classroom activities (Abidin, 2017; Sarwanto et al., 2021). However, comprehensive studies examining the overall development of critical multiliteracy research, including publication trends, influential authors, collaboration networks, and thematic evolution, remain limited. Previous investigations have also not sufficiently mapped emerging themes and future research directions within critical multiliteracy research in elementary education.

Therefore, a bibliometric review is needed to systematically map the development of critical multiliteracy research in elementary education. Bibliometric analysis provides a comprehensive approach for identifying publication trends, influential contributors, dominant themes, and emerging research directions within a particular field of study. Through bibliometric mapping, this study aims to provide a broader understanding of the intellectual structure and research evolution of critical multiliteracy in elementary education while identifying potential opportunities for future research development.

2. Literature Review

Critical multiliteracy has become an important pedagogical approach in elementary education because it integrates literacy skills, critical thinking, communication, and multimodal learning practices within classroom instruction. Previous studies have shown that multiliteracy-based learning can improve students' reading comprehension, conceptual understanding, and participation in learning activities. Multiliteracy pedagogy also encourages students to engage critically with various forms of texts and media while promoting collaborative and student-centered learning environments (Abidin, 2017; Cope & Kalantzis, 2013). In elementary education, the implementation of multiliteracy learning has been associated with the development of higher-order thinking skills, inquiry-based learning, and literacy engagement among students (Allison & Goldston, 2018; Maesaroh & Muzayyin, 2022).

Table 1 presents several empirical studies have specifically investigated the effectiveness of critical multiliteracy learning in improving students' literacy abilities. Most previous studies focused on classroom implementation, reading comprehension achievement, and students' responses toward multiliteracy-based instruction. These studies generally reported positive impacts of multiliteracy learning on students' reading comprehension skills, critical thinking, and learning motivation (Abidin, 2017; Maesaroh & Muzayyin, 2022). Other studies also highlighted the growing integration of digital and multimodal literacy practices in educational settings, indicating that multiliteracy research has expanded beyond traditional literacy instruction into broader discussions related to technology-enhanced learning and multimodal pedagogy (Holloway, 2021; Lee et al., 2021). However, despite the increasing number of studies, comprehensive bibliometric investigations examining the development and thematic evolution of critical multiliteracy research in elementary education remain limited.

Table 1. Research on critical multiliteracy research in elementary education.

No	Title	Reference
1	Pengembangan Model Pembelajaran Literasi Berbasis Konsep Multiliterasi, Integratif, dan Berdiferensiasi (MID) di Sekolah Dasar	Abidin (2017)
2	The effect of critical multiliteracy learning model on students' reading comprehension	Maesaroh & Muzayyin (2022)
3	The multiliteracies project: preservice and inservice teachers learning by design in diverse content areas	Holloway (2021)
4	Practicing multiliteracies to enhance EFL learners' meaning making process and language development: a multimodal Problem-based approach	Lee et al. (2021)

3. Research Method

3.1. Research Design

This study employed a bibliometric review design to analyze the development of critical multiliteracy research in elementary education. Bibliometric analysis is widely used to identify publication trends, influential authors, collaboration networks, and thematic developments within a specific field of study. Through this approach, the study aimed to map the intellectual structure and emerging directions of critical multiliteracy research based on scientific publication metadata.

3.2. Data Sources

The data were collected from Google Scholar through Publish or Perish. The publication search was limited to the period 2020–2026 with a maximum retrieval target of 500 articles. To improve search precision, each search keyword was written using quotation marks, such as “critical multiliteracy,” “multiliteracy,” “multiliteracy pedagogy,” “elementary education,” and “primary education.” The retrieved metadata were exported in RIS and CVR formats for bibliographic management and visualization analysis.

3.3. Procedure of Data Collection

The data collection process began by determining keywords related to critical multiliteracy and elementary education in Publish or Perish. The retrieved publications were then screened based on their relevance to the research topic, while duplicate records, incomplete metadata, and unrelated studies were excluded from the dataset. After the screening process, the selected metadata were exported into RIS and CVR files to support bibliometric mapping and visualization processes.

3.4. Data Analysis

The collected data were analyzed using Microsoft Excel and VOSviewer. Microsoft Excel was utilized to organize publication data and identify publication trends, citation frequencies, and author productivity, while VOSviewer was employed to generate network visualization, co-occurrence analysis, overlay visualization, and density visualization. The analysis focused on identifying publication development, dominant research themes, collaboration patterns, and emerging topics in critical multiliteracy research within elementary education.

4. Results and Discussion

4.1. Critical Multiliteracy Research in Elementary Education 2020–2026

The analysis of publication output from 2020 to 2026 reveals a considerable growth in research related to critical multiliteracy in elementary education. The data were retrieved

from Google Scholar through Publish or Perish using keywords associated with “critical multiliteracy,” “multiliteracy,” “multiliteracy pedagogy,” “elementary education,” and “primary education.” From the initial dataset of 500 retrieved documents, a total of 430 publications met the inclusion criteria and were included in the bibliometric analysis.

As presented in Table 2 and visualized in Figure 1, the annual publication trend demonstrates fluctuating yet progressively increasing research interest in critical multiliteracy within elementary education. The number of publications increased from 48 documents (11.16%) in 2020 to 65 documents (15.12%) in 2021, indicating the growing scholarly attention toward multiliteracy pedagogy and literacy transformation in primary education contexts. Although there was a slight decline in 2022 and 2023, publication productivity increased significantly in 2024 and reached its highest point in 2025 with 88 publications (20.47%). This trend suggests that critical multiliteracy has become an increasingly important topic in educational research, particularly in relation to digital literacy, multimodal learning, critical thinking, and student-centered learning approaches.

The increasing number of publications reflects the growing transformation of literacy practices in elementary education in response to technological development and multimodal communication environments. Previous studies emphasized that multiliteracy pedagogy supports students in developing communication skills, critical thinking, and meaning-making abilities through various forms of texts and media (Ahmadi & Ibda, 2019; Cope & Kalantzis, 2013). In elementary education, multiliteracy learning has increasingly been associated with inquiry-based learning, digital literacy integration, and student-centered instructional practices aimed at strengthening students’ reading comprehension and higher-order thinking skills (Abidin, 2017; Maesaroh & Muzayyin, 2022). Furthermore, recent studies have shown that the integration of digital and multimodal learning environments has expanded critical multiliteracy research into broader educational discussions related to technology-enhanced learning and interactive pedagogy (Lee et al., 2021; Holloway, 2021). Therefore, the upward trend of publications identified in this study indicates that critical multiliteracy is becoming an increasingly significant area of research within elementary education contexts.

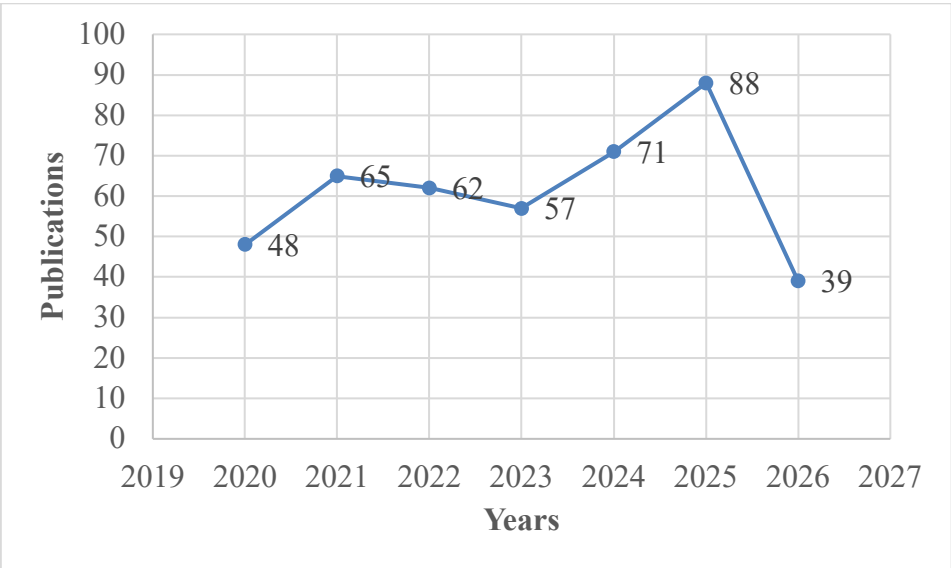


Figure 1. Annual report of publications.

Table 2. Annual report on “critical multiliteracy research in elementary education”.

Years	Publications	(%) of Publications
2020	48	11,16%

Years	Publications	(%) of Publications
2021	65	15,12%
2022	62	14,42%
2023	57	13,26%
2024	71	16,51%
2025	88	20,47%
2026	39	9,07%
Total	430	100%

4.2. Most Influential and Highly Cited Publications

The citation analysis identifies the most influential publications contributing to the development of critical multiliteracy research in elementary education. As presented in Table 3, the highly cited publications mainly discuss digital literacy, multimodal learning, multiliteracies pedagogy, and technology integration in language and literacy education contexts. These studies have significantly shaped the theoretical and pedagogical development of critical multiliteracy research by emphasizing the importance of multimodal communication, digital learning environments, and student-centered literacy practices.

The findings indicate that recent highly cited studies are strongly associated with digital literacy and multimodal pedagogy, reflecting the ongoing transformation of literacy education in the digital era. For example, studies by [Akayoglu et al. \(2020\)](#), [Wuyckens et al. \(2022\)](#), and [Bacalja et al. \(2022\)](#) emphasized the growing importance of digital literacy competencies and media literacy integration in educational settings. Similarly, multiliteracies and multimodal composing have become central discussions in literacy education research because they encourage students to interact critically with various forms of texts, media, and communication platforms. This trend is consistent with the theoretical perspective that multiliteracy pedagogy supports meaning-making processes through multimodal and socially situated learning experiences ([Cope & Kalantzis, 2013](#); [Warner & Dupuy, 2018](#)).

Several influential publications also highlighted the increasing integration of technology-enhanced learning and multimodal pedagogy in elementary and language education contexts. Studies related to digital storytelling, online collaboration platforms, and multimodal classroom practices indicate that literacy learning is shifting toward interactive and technology-supported environments ([Chan et al., 2024](#); [Pavlou, 2020](#)) on multilingualism, translanguaging, and plurilingual literacy demonstrates that critical multiliteracy research has expanded into broader discussions involving cultural diversity and inclusive literacy practices ([Cross et al., 2022](#); [Shank Lauwo et al., 2022](#)). These findings suggest that critical multiliteracy research continues to evolve dynamically in response to educational transformation, digital communication practices, and the increasing demand for 21st-century literacy competencies.

Table 3. Most cited articles on critical multiliteracy research in elementary education.

No	Cites	Title	Year	Cites Per Year	Ref.
1	215	Digital literacy practices of Turkish pre-service EFL teachers	2020	35.83	Akayoglu et al. (2020)
2	203	Establishing the concept of AI literacy	2021	40.60	Yi (2021)
3	196	Untangling media literacy, information literacy, and digital literacy: A systematic meta-review of core concepts in media education	2022	49.00.00	Wuyckens et al. (2022)

No	Cites	Title	Year	Cites Per Year	Ref.
4	134	Developing digital literacy practices in Yogyakarta elementary schools	2022	33.50.00	Suwarto et al. (2022)
5	117	Art technology integration: Digital storytelling as a transformative pedagogy in primary education	2020	19.50	Pavlou (2020)
6	109	Multimodal composing in multilingual learning and teaching contexts	2020	18.17	Yi et al. (2020)
7	90	Digital multimodal composing in L2 learning: Ideologies and impact	2021	18.00	Jiang & Ren (2021)
8	89	Multiliteracies: Life of an idea	2023	29.67	Kalantzis & Cope (2023)
9	80	The innovative use of social media for teaching English as a second language	2020	13.33	De Jager et al. (2020)
10	77	Unpacking the teachers' multimodal pedagogies in the primary English language classroom in Singapore	2023	25.67	Lim et al. (2023)
11	73	Using a multiliteracies approach to foster critical and creative pedagogies for adult learners	2020	12.17	Holloway & Gouthro (2020)
12	71	Pre-service teachers' conceptions and competences on digital literacy in an EFL academic writing setting	2021	14.20	Nabhan (2021)
13	69	Plurilingualism and language and literacy education	2022	17.25	Cross et al. (2022)
14	59	A review of theories and practices of multiliteracies in classroom: Issues and trends	2020	0,43263889	Hong & Hua (2020)
15	58	Shifting landscapes of digital literacy	2022	14.50	Bacalja et al. (2022)
16	56	Plurilingualism, equity, and pre-service teacher identity: Centring [linguistic] diversity in teacher education	2022	14.00	Shank Lauwo et al. (2022)
17	53	Miro: Promoting collaboration through online whiteboard interaction	2024	26.50.00	Chan et al. (2024)
18	52	Translanguaging as Transmediation: Embodied Critical Literacy Engagements in a French-English Bilingual Classroom	2020	0,37986111	Lau (2020)
19	52	Multimodal literature in ELT: Theory and practice	2020	0,37986111	Eisenmann & Summer (2020)
20	50	Engaging preschoolers with critical literacy through counter-storytelling: A qualitative case study	2021	10.00	Kim & Hachey (2021)

4.3. Visualization of Research Data Mapping of Critical Multiliteracy Research in Elementary Education

Minimum number of occurrences of a term was set at 10. Of the 2,497 identified terms, 44 terms met the threshold requirement. For each term, a relevance score was calculated using VOSviewer, and the 60% most relevant terms were automatically selected, resulting in 26 terms included in the visualization analysis.

As illustrated in Figure 2, the co-occurrence network demonstrates a structured relationship among research themes and resulted in six major clusters consisting of 26

interconnected items. The first cluster (red), consisting of 7 items, includes critical thinking, multiliteracies approach, multiliteracies framework, multiliteracy, multimodality, pedagogy, and skill. The second cluster (green), consisting of 7 items, includes case study, child, concept, digital storytelling, elementary school level, identity, and multiliteracy pedagogy. The third cluster (blue), consisting of 6 items, includes art, critical pedagogy, digital literacy, knowledge, teacher education, and understanding. The fourth cluster (yellow), consisting of 4 items, includes critical framing, instruction, multiliteracies pedagogy, and practice. The fifth cluster (purple), consisting of 1 item, includes application, while the sixth cluster (light blue), consisting of 1 item, includes process.

The network visualization indicates that “multiliteracy” became the central and most strongly connected term within the research landscape, closely associated with pedagogy, practice, critical thinking, and multiliteracies pedagogy. This finding suggests that critical multiliteracy research in elementary education has largely focused on pedagogical transformation and the development of students’ critical literacy skills. Previous studies emphasized that multiliteracy pedagogy supports students in developing meaning-making abilities through multimodal and socially situated learning experiences (Cope & Kalantzis, 2013; Mills, 2009). Similarly, Abidin (2017) that multiliteracy learning in elementary education promotes integrative and differentiated literacy instruction aimed at improving students’ reading comprehension and critical thinking skills.

The presence of terms such as digital literacy, digital storytelling, multimodality, and practice reflects the increasing integration of technology and multimodal communication within literacy learning environments. These findings align with previous studies indicating that contemporary literacy instruction increasingly involves multimodal texts, interactive media, and digital learning platforms to support students’ engagement and literacy development (Holloway, 2021; Lee et al., 2021). Furthermore, the emergence of clusters related to critical pedagogy, identity, and critical framing indicates that critical multiliteracy research has expanded beyond traditional literacy instruction into broader discussions involving reflective learning, social awareness, and inclusive educational practices (Allison & Goldston, 2018; Warner & Dupuy, 2018). Therefore, the visualization results demonstrate that critical multiliteracy research in elementary education is multidimensional and continuously evolving in response to educational and technological transformation.

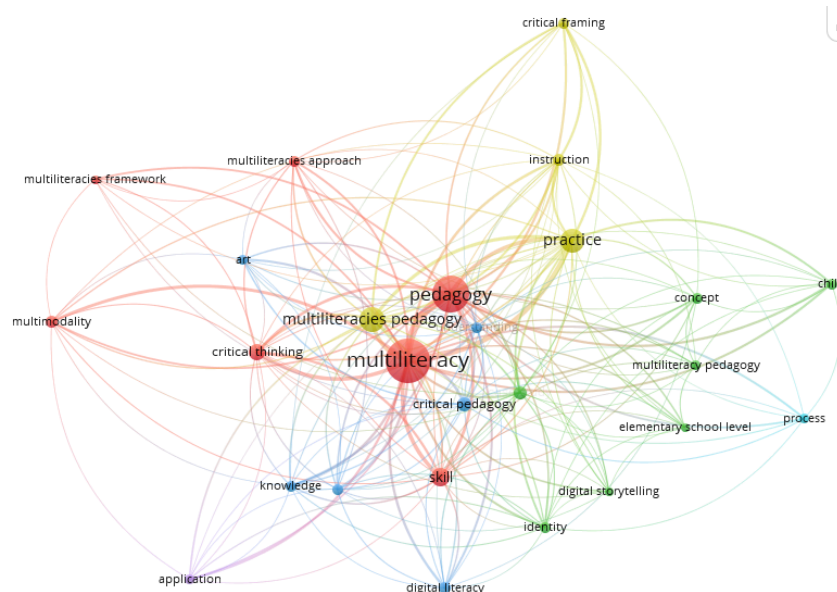


Figure 2. Network visualization based on co-occurrence of terms.

The overlay visualization shown in Figure 3 illustrates the temporal development of research themes in critical multiliteracy studies. The visualization indicates that earlier studies were mainly associated with concepts such as multimodality, critical framing, instruction, and practice. Meanwhile, more recent studies increasingly focused on terms including digital literacy, multiliteracies approach, critical thinking, and multiliteracies pedagogy. This shift demonstrates the growing scholarly interest in integrating digital technology, multimodal communication, and critical literacy practices into elementary education contexts. The overlay analysis also suggests that current research trends emphasize student-centered learning environments and technology-enhanced literacy instruction as important components of 21st-century education.

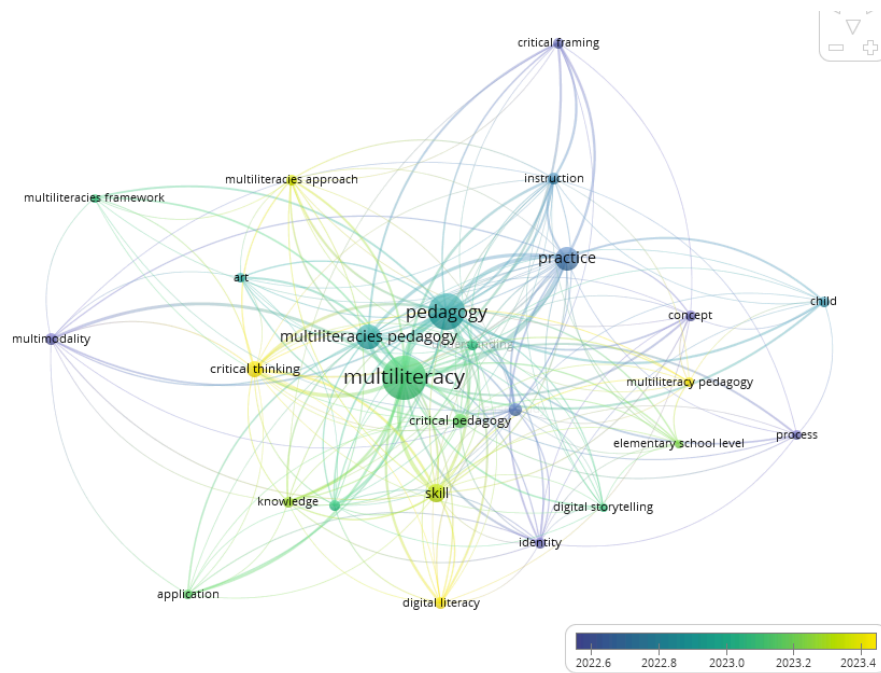


Figure 3. Overlay visualization based on co-occurrence of terms.



Figure 4. Density visualization based on the co-occurrence of terms.

Furthermore, the density visualization shown in Figure 4 reveals the concentration and frequency of research themes within the bibliometric network. The brightest and most

dominant areas are centered around the terms “multiliteracy,” “pedagogy,” “practice,” and “multiliteracies pedagogy,” indicating that these themes have become the primary focus of existing studies. In contrast, several themes such as application, process, identity, and digital storytelling appear less densely connected, suggesting that these areas remain relatively underexplored and provide opportunities for future research development. The density mapping confirms that pedagogical practices and literacy transformation remain the dominant discourse within critical multiliteracy research in elementary education, while emerging themes related to digital literacy and multimodal learning continue to gain increasing scholarly attention.

4.4. Synthesis and Implications

The findings of this bibliometric review demonstrate that critical multiliteracy research in elementary education has experienced significant development in recent years, particularly in relation to pedagogy, critical thinking, digital literacy, and multimodal learning practices. The increasing publication trends and interconnected keyword networks indicate that multiliteracy is no longer viewed solely as a traditional literacy approach but has evolved into a broader educational framework integrating technology, communication, and student-centered learning environments. The dominance of terms such as multiliteracy, pedagogy, practice, and critical thinking reflects the growing emphasis on developing students’ higher-order thinking skills and meaning-making abilities through multimodal and interactive learning experiences. These findings are consistent with previous studies emphasizing that multiliteracy pedagogy supports critical engagement, collaborative learning, and literacy transformation within contemporary educational contexts (Cope & Kalantzis, 2013; Lee et al., 2021).

The study also provides important implications for elementary education practices and future research directions. The emergence of themes related to digital literacy, digital storytelling, and critical pedagogy suggests that teachers and curriculum developers need to integrate multimodal and technology-supported literacy practices into classroom instruction. In addition, several relatively underexplored themes identified in the density visualization, such as identity, application, and process, indicate potential opportunities for future investigations related to inclusive literacy learning, reflective pedagogy, and digital learning engagement. Therefore, critical multiliteracy research is expected to continue expanding in response to educational transformation and the increasing demand for 21st-century literacy competencies in elementary education.

5. Conclusion

This bibliometric review provides a comprehensive overview of the development of critical multiliteracy research in elementary education from 2020 to 2026. The findings indicate that research related to critical multiliteracy has continued to increase, reflecting growing scholarly attention toward literacy transformation, multimodal learning, digital literacy, and student-centered pedagogy within elementary education contexts. The bibliometric mapping demonstrates that themes related to multiliteracy, pedagogy, practice, and critical thinking became the dominant focus of existing studies, while the overlay and density visualizations reveal an evolving research trend toward digital learning environments, multimodal communication, and technology integration. In addition, emerging themes such as digital storytelling, critical pedagogy, and digital literacy suggest that contemporary literacy instruction increasingly emphasizes interactive and multimodal learning experiences aligned with 21st-century educational demands. The study also identifies several relatively underexplored themes, including identity, application, and process, which provide potential opportunities for future investigations. Overall, this study contributes to understanding the intellectual structure and thematic

evolution of critical multiliteracy research in elementary education and offers valuable insights for researchers, educators, and curriculum developers in designing innovative literacy learning practices.

Conflict of Interest Statement

The authors declare that there is no conflict of interest regarding the publication of this article.

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Author Contributions

Elmiati: Conceptualization, initial draft writing, data collection; Nurvalidainismawati: Methodology; Suryaningsih: Final editing; Rusli: Revision.

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