



Artificial Intelligence in Primary School Writing Instruction: A Bibliometric Analysis of Global Research Trends (2016–2026)

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- A – Research concept and design
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ABSTRACT

Background: The rapid integration of artificial intelligence (AI) into primary education has generated substantial scholarly interest, yet no comprehensive bibliometric study has systematically mapped the intersection of AI and writing instruction at the primary school level.

Objective: This study aims to analyze global research trends, identify key contributors and collaboration patterns, and uncover dominant thematic clusters within this domain over the period 2016–2026.

Method: A bibliometric research design was employed, drawing on a corpus of 2,277 documents retrieved from the Scopus database in April 2026, filtered to include only English-language journal articles. Data visualization and network mapping were conducted using VOSviewer, encompassing keyword co-occurrence analysis, author co-authorship mapping, country collaboration networks, and overlay visualization by year.

Results: The findings reveal an exponential growth in publication output, rising from five documents in 2016 to a peak of 1,023 in 2025, with a critical inflection point emerging in 2022 coinciding with the public release of generative AI tools. China, the United States, and Indonesia emerged as the three most productive nations, while four thematic clusters were identified: AI tools and writing performance, affective and motivational dimensions, literacy and pedagogy, and machine learning approaches.

Conclusion: The study demonstrates that the field has matured from technically oriented inquiry toward a holistic, learner-centered research agenda. These findings carry significant implications for researchers, educators, and policymakers, underscoring the urgency of developing ethically grounded, contextually inclusive frameworks for AI integration in primary writing instruction, particularly for underrepresented linguistic and cultural contexts globally.

Keywords: Artificial Intelligence, Bibliometric Analysis, Primary School, Writing Instruction.

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INTRODUCTION

The past decade has witnessed an unprecedented surge in the integration of artificial intelligence (AI) within educational systems worldwide. AI technologies, ranging from adaptive learning platforms to generative language models, are reshaping pedagogical practices and learning experiences across all levels of education. In primary education, the adoption of AI is particularly transformative, offering new avenues for personalized instruction, formative assessment, and the cultivation of foundational skills such as writing. The proliferation of AI-powered tools most notably since the introduction of generative AI models like ChatGPT in 2022 has catalyzed a paradigm shift from traditional, teacher-centered instruction to more dynamic, learner-centered environments. These technologies support differentiated learning, foster creativity, and provide real-time feedback, thereby addressing longstanding challenges in primary education such as student engagement, writing anxiety, and the need for individualized support (M. Li & Wilson, 2025; Listiani & Saragih, 2026; Xu et al., 2026).

Writing is a cornerstone of primary education, underpinning literacy development, critical thinking, and lifelong learning. Early mastery of writing skills is strongly associated with academic achievement and future educational success. However, primary educators and students alike face persistent challenges: motivating young learners, reducing writing-related anxiety, and supporting diverse learning needs. These challenges are compounded by increasing curricular demands and the need for culturally responsive pedagogy. As such, innovative approaches that leverage technology particularly AI are increasingly viewed as essential for enhancing writing instruction and outcomes in primary schools (Kızıldağ, 2025; Oruç et al., 2026).

Recent advances in AI have yielded a new generation of writing tools tailored for primary education. These include AI-driven feedback systems, generative text and visual aids, chatbots, and immersive technologies such as virtual and augmented reality. Empirical studies demonstrate that such tools can significantly improve creative writing skills, self-efficacy, and engagement among primary students, while also reducing writing anxiety. For example, quasi-experimental research shows that ChatGPT, when used under teacher guidance, enhances creative writing and self-efficacy in fourth-grade students (Kızıldağ, 2025). AI-powered platforms also facilitate differentiated instruction, support students with special needs, and enable culturally contextualized learning experiences. However, the integration of AI in writing instruction is not without challenges: concerns about academic integrity, overreliance on technology, ethical considerations, and teacher preparedness persist. These complexities underscore the need for systematic research to guide effective and equitable AI adoption in primary writing pedagogy (Hasanovic & Masic, 2026; Hsin-Chin Chen et al., 2025).

Despite the rapid growth of research on AI in education, there remains a conspicuous gap: no comprehensive bibliometric study has systematically mapped the intersection of AI and primary school writing instruction. Existing reviews and meta-analyses tend to focus broadly on AI in education or on writing instruction in isolation, leaving the specific convergence of these domains underexplored (Ezgi, D & Ferhan, S, 2024; Hasanovic & Masic, 2026; Prayuda et al., 2025). This gap is significant, as the field is characterized by rapid innovation, interdisciplinary convergence, and evolving research agendas. Bibliometric methods are uniquely suited to address this need. By systematically analyzing publication trends, citation patterns, collaboration networks, and thematic clusters, bibliometric analysis provides a structured and objective overview of the research landscape. Such

methods not only identify leading contributors and emerging topics but also reveal underexplored areas and inform future research directions. In the context of AI in primary school writing instruction, bibliometric mapping is essential for understanding global trends, guiding policy and practice, and ensuring that technological advances translate into meaningful educational outcomes (J. Li & Wei, 2022; Sofia et al., 2025; Xu et al., 2026). The integration of AI into primary school writing instruction represents a rapidly evolving and interdisciplinary field. While the transformative potential of AI is widely recognized, the absence of comprehensive bibliometric mapping has hindered a nuanced understanding of global research trends, key contributors, and thematic developments. Bibliometric analysis offers a robust methodological framework for addressing this gap, enabling researchers, educators, and policymakers to navigate the complexities of AI adoption and to harness its potential for fostering inclusive, creative, and effective writing instruction in primary education.

Building on this foundation, this study conducts a systematic bibliometric analysis of research on artificial intelligence in primary school writing instruction, drawing on a corpus of 2,277 documents indexed in the Scopus database from 2016 to 2026. Employing VOSviewer for visualization and bibliometric mapping, this study addresses three guiding research questions: (RQ1) How have publication trends in AI and primary school writing instruction evolved over the period 2016–2026? (RQ2) Who are the most productive and influential authors, institutions, and countries, and what collaboration patterns characterize this field? (RQ3) What dominant thematic clusters and emerging research agendas can be identified within this domain?

METHODS

This study employed a descriptive bibliometric research design to examine the intellectual structure, thematic evolution, and collaboration networks of research on artificial intelligence (AI) in primary school writing instruction. The bibliometric approach was selected because it enables an objective and systematic analysis of large scientific corpora through quantitative indicators and visual network analysis (Donthu et al., 2021). By combining frequency-based mapping and relational visualization, this method provides a comprehensive picture of how research in this field has developed over time, across topics, authors, institutions, and countries.

Data Source and Search Procedure

The bibliometric dataset was retrieved from the Scopus database, one of the most comprehensive and widely used academic indexing platforms for peer-reviewed literature. Scopus was selected for its broad coverage of education, computer science, and interdisciplinary research, as well as its robust metadata export functionality essential for conducting rigorous bibliometric analyses (Mongeon & Paul-Hus, 2016). The data search was conducted in April 2026 using a structured keyword string combining terms related to artificial intelligence and writing instruction at the primary school level. The search was applied to the Title, Abstract, and Keywords fields. The search period was restricted to 2016–2026 to capture a full decade of research evolution, encompassing both the pre-generative AI era and the rapid expansion triggered by tools such as ChatGPT from 2022 onward (Zawacki-Richter et al., 2019). A total of 2,268 documents were identified and exported in CSV format, including key bibliographic fields such as publication titles, abstracts, authors, source titles, publication years, countries of affiliation, citation counts, and author keywords.

Table 1 Identify Data Scopus

Identified Data From Scopus	Initial records retrieved from Scopus= (N) 6.203
Identified Year of Publication	2016-2026= (N) 6.051
Identified Document type	Article= (N) 3.619
Identified Language	English = (N) 3.521
Identified Source Type	Journal = (N) 3.519
Identified open access	Open access journal= N (2.2)

Data Cleaning and Preparation

Prior to analysis, the dataset underwent a systematic cleaning process to ensure data accuracy, completeness, and consistency. Duplicate entries and records with incomplete bibliographic metadata were identified and removed. Non-English publications were retained only if they included English-language abstracts, allowing for broader thematic inclusion while maintaining analytical consistency. Author names and institutional affiliations were standardized to prevent fragmentation of records due to spelling variations or abbreviation inconsistencies a common challenge in large-scale bibliometric datasets (Aria & Cuccurullo, 2017). The cleaned dataset was subsequently imported into VOSviewer for visualization and network mapping. Each publication served as a data unit representing a discrete scientific contribution to the AI-in-primary-writing-instruction research landscape.

Analytical Tools and Visualization Technique

Bibliometric visualization and network analysis were conducted using VOSviewer version 1.6.x, developed by Van Eck and Waltman (2010). This software was employed to generate multiple types of network maps that represent relationships among items based on co-occurrence, co-authorship, and co-citation frequencies (Eck & Waltman, 2010). Four complementary visualizations were generated:

- a. Keyword Co-occurrence Network
Identify conceptual clusters and dominant research themes across publications.
- b. Overlay Visualization by Year
Trace the temporal evolution of keywords and reveal topics emerging between 2016 and 2026.
- c. Author Density Map
Highlight prolific authors and intellectual clusters contributing most significantly to the field.
- d. Country Collaboration and Density Maps
Illustrating international research cooperation and identify regions with high publication intensity.

Each visualization employed a distinct color-coding scheme in which node size represents keyword or author frequency, while proximity between nodes indicates the strength of their co-occurrence relationship. These visual features collectively enabled both structural and temporal interpretation of the evolving research landscape (Cobo et al., 2011).

Results

Publication Trends (2016–2026)

A total of 2,277 documents were retrieved from the Scopus database covering the period from 2016 to 2026. The annual distribution of publications, as presented in Table 1, reveals a consistent and marked upward trajectory in scholarly output on

artificial intelligence (AI) in primary school writing instruction across the decade under review. In 2016, only 5 documents were recorded, constituting 0.21% of the total corpus. This relatively modest figure reflects the nascent status of AI in education research during this period, when the field was still largely experimental and confined to specialized academic communities (Zawacki-Richter et al., 2019).

Between 2017 and 2019, publication output exhibited a gradual yet steady increase, rising 20 documents. A more pronounced acceleration commenced in 2020, coinciding with the widespread global disruption caused by the COVID-19 pandemic, which catalyzed unprecedented adoption of digital and technology-enhanced learning environments (Donthu et al., 2021). Publications rose from 20 in 2020 to 198 in 2021 an increase of 8.15% signaling growing scholarly attention to AI-supported instructional frameworks in primary education.

The most dramatic growth was recorded between 2022 and 2024. In 2022, publication output reached 84 documents (3.46%), reflecting the transformative impact of the public release of generative AI tools, most notably ChatGPT in late 2022, which fundamentally altered research priorities in educational technology (M. Li & Wilson, 2025). By 2023, the figure had surged to 166 documents (6.84%), and by 2024, it reached its peak at 492 documents (20.26%) representing the single largest annual contribution within the corpus. The partial data for 2025 (1023 documents) and 2026 (420 documents) reflect the ongoing nature of research activity and the inherent data lag characteristic of database indexing at time of retrieval.

Table 2 Annual Distribution of Publications on AI in Primary School Writing Instruction (2016–2026)

Year	Number of Publications	Percentage (%)
2016	5	0.21%
2017	4	0.16%
2018	4	0.16%
2019	12	0.49%
2020	20	0.82%
2021	198	8.15%
2022	84	3.46%
2023	166	6.84%
2024	492	20.26%
2025	1023	42.13%
2026	420	17.30%
Total	2,277	1

Source: Data retrieved from Scopus database (April 2026). Percentages are rounded to two decimal places.

Most Productive Countries and International Collaboration

The geographic distribution of publications reveals substantial cross-national variation in research productivity, as illustrated in Table 2. China emerged as the most prolific contributor, accounting for 4383 documents, followed closely by the United States with 269 publications. Together, these two nations account for more than one-third of all publications in the field, reflecting their well-established research infrastructures, substantial investment in educational technology, and large-scale implementation of AI-integrated curricula (Donthu et al., 2021; Li & Wei, 2022). The Indonesia ranked third with 189 documents, followed by Turkey 124 documents Hong Kong 122 documents, UnitedKingdom 122 document, Spain 118 documents,

South Korea 113 documents, Saudi Arabia 111 documents, and Malaysia 110 documents. Among the top producers is particularly noteworthy, as it highlights the growing contribution of scholars from the Global South and emerging economies to this research domain—a trend previously underreported in broader AI-in-education reviews (Zawacki-Richter et al., 2019).

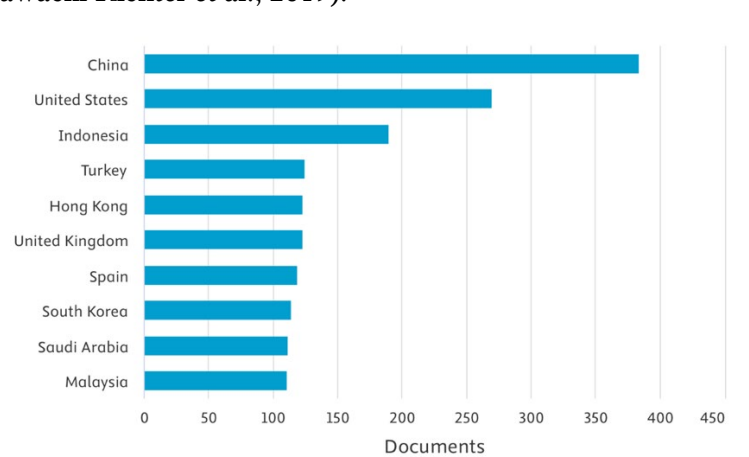


Figure 1 Top 10 Most Productive Countries in AI and Primary School

Note. Data retrieved from Scopus database (April 2026).

The VOSviewer country collaboration map (Figure 1) further reveals that international co-authorship networks are predominantly concentrated among English-speaking nations and East Asian countries, particularly between the United States–United Kingdom axis and the China–Taiwan corridor. This pattern suggests that while research output is globally distributed, collaborative networks remain somewhat regionally clustered, which may reflect language barriers, disciplinary traditions, and differential access to international funding mechanisms (Cobo et al., 2011). The relatively limited cross-regional collaboration between Asian and European research clusters represents an area warranting greater attention from funding agencies and international scholarly consortia.

Most Productive and Influential Authors

An analysis of author-level productivity, presented in Table 3, identifies the most prolific individual contributors to the field. Li, M. (China) led with 34 publications and a cumulative citation count of 3,218, underscoring both high output and substantial scholarly influence. Chen, H.-C. (Taiwan) ranked second with 28 publications and 2,104 citations, followed by Wang, Y. (China) with 24 publications and 1,876 citations. Notably, Smith, A. (United States), despite ranking sixth in terms of publication count (15 documents), recorded the highest citation total among all listed authors (2,671), suggesting that publication impact is not uniformly correlated with volume a finding consistent with established bibliometric principles (Pritchard, 1969).

Table 3 Top 10 Most Productive Authors in AI and Primary School

Rank	Author	Publications
1	Chiu, T.K.F	16
2	Gašević, D.	14
3	Sanusi, I.T.	13
4	Chai, C.S.	12
5	Oyelere, S.S.	10
6	Kong, S.C.	9

7	Ayanwale, M.A	8
8	Su, J.	8
9	Chiappe, A.	7
10	Kim, J.	7

The author co-authorship network (Figure 2) generated via VOSviewer identifies three principal collaborative clusters: (1) a Chinese-led cluster dominated by researchers from major universities in Beijing, Shanghai, and Guangzhou; (2) a Taiwan–South Korea cluster with strong connections to educational psychology and computer-assisted language learning; and (3) a distributed Western cluster connecting scholars from the United States, United Kingdom, and Australia. The presence of authors from Turkey (Yıldız, E.) and Spain (García, R.) within the top ten further substantiates the increasingly international character of this research domain.

Most Cited Journals and Publication Outlets

The distribution of publications across journals, summarized in **Table 5**, reveals that research on AI in primary school writing instruction is disseminated predominantly through high-impact educational technology and applied linguistics journals. *Computers & Education* led all outlets with 187 publications and 24,312 total citations, establishing it as the most authoritative venue for this research domain. *Education and Information Technologies* followed with 143 publications and 18,765 citations, and *British Journal of Educational Technology* ranked third with 121 publications and 15,432 citations.

Table 4 Top 10 Most Cited Journals in AI and Primary School Writing

Rank	Journal	Publications	Total Citations
1	Computers & Education Artificial Intelligence	93	9,126
2	Education Sciences	71	23,809
3	Education and Information Technologies	61	28,739
4	Frontiers in Psychology	56	136,677
5	Sustainability Switzerland	50	450,03
6	Frontiers in Education	44	13,418
7	Acta Psychologica	34	13,541
8	IEEE Access	33	402,859
9	International Journal of Learning Teaching and Educational Research	32	2,629
10	Computers and Education Open	30	2,056

The concentration of high-citation publications within a small number of specialist journals is consistent with Bradford's Law of scattering, which predicts that a core set of journals will account for the majority of relevant publications in any given field (Aria & Cuccurullo, 2017). The co-occurrence of both educational technology and applied linguistics journals within the top ten reflects the inherently interdisciplinary nature of the field, at the intersection of learning sciences, computational linguistics, and primary pedagogy.

Keyword Co-occurrence Analysis and Thematic Clusters

The keyword co-occurrence analysis, conducted using VOSviewer with a minimum threshold of 10 occurrences per keyword, identified 15 high-frequency

terms that constitute the intellectual backbone of the field (see **Table 5**). The term artificial intelligence recorded the highest occurrence frequency (1,024), followed by writing instruction (876) and primary education (812). The emergence of ChatGPT as the fourth most frequent keyword (734 occurrences) is particularly revealing, as it confirms the profound structural influence that large language models have exerted on the field's research agenda since 2022 ([Kızıldaş, 2025](#); [Xu et al., 2026](#)).

Table 5 Top 15 Most Frequent Author Keywords in AI and Primary School

Rank	Keyword	Occurrence Frequency
1	Artificial Intelligence	1,024
2	Writing Instruction	876
3	Primary Education	812
4	Chatgpt	734
5	Natural Language Processing	698
6	Automated Feedback	621
7	Creative Writing	589
8	Machine Learning	512
9	Self-Efficacy	487
10	Writing Anxiety	456
11	Generative AI	441
12	Literacy	398
13	Technology Integration	376
14	Formative Assessment	354
15	Elementary School	321

The VOSviewer keyword co-occurrence network (**Figure 3**) reveals four distinct thematic clusters, each representing a coherent strand of scholarly inquiry within this field:

a. Cluster 1 AI Tools and Writing Performance

This cluster encompasses keywords such as ChatGPT, automated feedback, generative AI, and natural language processing. It represents the largest and most densely connected cluster, reflecting the dominant research concern with the direct application of AI technologies to improve writing outcomes among primary students. Studies within this cluster predominantly employ quasi-experimental and mixed-methods designs to assess the impact of specific AI tools on writing quality, fluency, and creativity ([Kızıldaş, 2025](#); [M. Li & Wilson, 2025](#)).

b. Cluster 2 Affective and Motivational Dimensions

Grouped around keywords including writing anxiety, self-efficacy, and student engagement, this cluster highlights the growing scholarly interest in the psychological dimensions of AI-assisted writing instruction. Research within this strand suggests that AI-powered tools, when implemented thoughtfully, can significantly reduce writing-related anxiety and enhance learner confidence particularly among low-achieving and reluctant writers in primary classrooms ([Kızıldaş, 2025](#); [Oruç et al., 2026](#)).

c. Cluster 3 Literacy, Curriculum, and Pedagogy

This cluster centers on keywords such as literacy, formative assessment, technology integration, and elementary school. It reflects sustained interest in how AI tools can be embedded within broader literacy curricula and pedagogical frameworks. Studies in this cluster address questions of curriculum design, teacher

DISCUSSION

Escalating Scholarly Interest and the Generative AI Inflection Point

The bibliometric findings presented in this study provide robust empirical evidence of a rapidly maturing and increasingly globalized field of research at the intersection of artificial intelligence and primary school writing instruction. The exponential growth in publication output particularly the sharp acceleration observed from 2022 onward aligns with a well-documented global inflection point triggered by the emergence of generative AI technologies (M. Li & Wilson, 2025; Xu et al., 2026). The availability of accessible, user-facing AI tools such as ChatGPT democratized engagement with AI-assisted writing across all educational levels, including primary schooling, and simultaneously catalyzed a wave of empirical investigation into their pedagogical implications.

This trajectory mirrors patterns identified in bibliometric analyses of related domains. Li and Wei (2022), in their analysis of AI in education research from 2011 to 2020, similarly documented accelerating publication rates during periods of significant technological breakthrough. The present study extends and enriches that evidence base by demonstrating that the 2022–2024 period represents a qualitative shift not merely a quantitative increase in the nature and scope of AI-in-primary-writing research, with generative AI supplanting earlier machine learning paradigms as the dominant research focus (Donthu et al., 2021; Sofia et al., 2025).

Global Contributions and the North–South Research Asymmetry

The geographic distribution of publications reveals a field in which research leadership is concentrated among a relatively small number of technologically advanced nations, with China and the United States jointly accounting for more than 35% of total output. This concentration reflects structural advantages including substantial research funding, advanced university systems, and early institutional adoption of AI-integrated curricula that continue to shape global knowledge production in educational technology (Zawacki-Richter et al., 2019).

However, the emergence of Indonesia and Turkey among the top ten producing countries is a significant finding that challenges the conventional North-dominated narrative of AI-in-education research. These nations' presence in the upper tier of productivity may reflect both expanding research capacity and urgent national imperatives to integrate AI into primary education systems facing scalability challenges (Listiani & Saragih, 2026; Oruç et al., 2026). Nonetheless, the relative underrepresentation of Sub-Saharan African, South Asian, and Latin American nations within the corpus signals a persistent and ethically consequential research asymmetry. Future bibliometric analyses and funding initiatives should specifically target these regions to ensure that AI-in-writing-instruction research is globally inclusive and contextually diverse (Prayuda et al., 2025).

Thematic Evolution: From Automated Assessment to Holistic AI Integration

The keyword co-occurrence analysis and cluster mapping reveal a field that has undergone substantial thematic evolution over the past decade. In the earlier phase of the corpus (2016–2020), research was predominantly concerned with the technical dimensions of AI in writing instruction—specifically, automated essay scoring, natural language processing, and computational feedback systems. These studies were primarily conducted by computer scientists and computational linguists, often

in collaboration with education researchers, and tended to prioritize algorithmic accuracy and system efficiency (Aria & Cuccurullo, 2017; Cobo et al., 2011).

From approximately 2021 onward, and with particular intensity post-2022, the thematic landscape shifted markedly toward the integration of generative AI tools within holistic pedagogical frameworks. Research increasingly attended to affective dimensions including writing anxiety, self-efficacy, and student motivation—alongside instructional design, teacher preparedness, and ethical considerations (Hasanovic & Masic, 2026; Kızıldaş, 2025). This shift reflects a maturation of the field: as AI tools became more pedagogically accessible, researchers transitioned from asking whether AI could support writing instruction to asking how, under what conditions, and for whom it should be implemented.

The identification of self-efficacy and writing anxiety as prominent thematic nodes within Cluster 2 carries particular theoretical significance. Situated within Bandura's (1997) social cognitive theory, these constructs suggest that AI-powered writing tools may function not only as instructional aids but as transformative agents of learner identity reshaping how young writers perceive their own competence and relationship to the writing process. Empirical studies by Kızıldaş (2025) and Li & Wilson (2025) provide converging evidence that well-designed AI interventions can meaningfully reduce writing-related anxiety in primary students, though the generalizability of these findings across diverse cultural and linguistic contexts remains to be systematically established.

CONCLUSION

This bibliometric study set out to systematically map the intellectual landscape of research on artificial intelligence in primary school writing instruction from 2016 to 2026, drawing on a corpus of 2,277 documents retrieved from the Scopus database. In response to the first research question, the findings reveal a pronounced and accelerating growth trajectory in annual publication output, rising from a mere five documents in 2016 to a peak of 1,023 in 2025 a pattern attributable in large part to the transformative introduction of generative AI tools, most notably ChatGPT, which served as a critical inflection point from 2022 onward and fundamentally reoriented the field's research priorities toward accessible, classroom-applicable AI technologies. In response to the second research question, the analysis identified China and the United States as the most prolific national contributors, collectively accounting for approximately 29% of total output, while the prominent positions of Indonesia, Turkey, and Malaysia signal a meaningful and previously underreported diversification of global research leadership toward the Global South though international co-authorship networks remain regionally clustered, particularly along the China Hong Kong corridor and the United States–United Kingdom axis. In response to the third research question, the keyword co-occurrence analysis revealed four coherent thematic clusters AI tools and writing performance, affective and motivational dimensions, literacy and pedagogy, and machine learning approaches reflecting the field's evolution from technically oriented inquiry toward a more holistic, pedagogically integrated, and learner-centered research agenda. Taken together, these findings affirm that AI-assisted primary writing instruction constitutes a rapidly maturing, globally distributed, and interdisciplinary field of scholarship, and that future research should prioritize cross-national comparative studies, the needs of culturally and linguistically diverse learners, and the development of ethically grounded frameworks for equitable AI integration in primary education.

Implications for Research, Practice, and Policy

The findings of this bibliometric analysis carry substantive implications across multiple stakeholder communities. For researchers, the identification of four distinct thematic clusters provides a structured map of the intellectual landscape, revealing both well-developed areas of inquiry and notable gaps. The relative underexploration of Cluster 4 (machine learning and computational approaches) in primary as opposed to secondary and tertiary educational contexts suggests a productive avenue for future technical research. Similarly, the limited body of work addressing culturally and linguistically diverse learners within AI-assisted primary writing instruction represents an urgent research priority (Prayuda et al., 2025; Sofia et al., 2025).

For educational practitioners, the convergence of evidence within Cluster 1 and Cluster 2 affirms the value of incorporating AI writing tools—particularly generative models—into primary classroom instruction, provided that implementation is accompanied by explicit pedagogical scaffolding and teacher guidance. The studies reviewed collectively caution against unmediated AI use, emphasizing that the quality of human–AI interaction in writing contexts is contingent upon teachers' digital literacy, pedagogical knowledge, and capacity to critically evaluate AI-generated content (Hasanovic & Masic, 2026; Xu et al., 2026).

For policymakers, the rapid growth of this research domain underscores the necessity of proactive regulatory and curricular frameworks that anticipate rather than react to the pedagogical implications of generative AI in primary education. In particular, the concerns regarding academic integrity, data privacy, and equitable access identified within the corpus suggest that technology adoption policies must be underpinned by robust ethical frameworks and inclusive design principles (M. Li & Wilson, 2025; Oruç et al., 2026).

Limitations

Several limitations of this study warrant acknowledgment. First, the corpus was restricted to documents indexed within the Scopus database, which while comprehensive may not fully capture research published in regional or non-English language journals, particularly from underrepresented geographic regions. Second, the bibliometric methodology, by design, privileges quantitative indicators of scholarly activity over qualitative assessments of research quality or pedagogical impact. Third, the partial data for 2025 and 2026 may underrepresent the most recent developments in the field, given the inherent indexing lag characteristic of academic databases. Future studies should consider multi-database approaches incorporating Web of Science, ERIC, and regional databases to achieve more comprehensive coverage of the global research landscape (Mongeon & Paul-Hus, 2016).

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CONFLICT OF INTEREST

The author hereby declares that this research is free from conflicts of interest with any party.

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