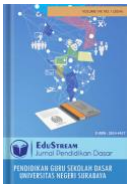

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STUDY ON READING LITERACY IN ELEMENTARY SCHOOLS: BIBLIOMETRIC ANALYSIS 2013-2023

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ABSTRACT

This study examines scholarly literature on reading literacy in elementary schools from 2013 to 2023 through bibliometric analysis. A total of 649 documents from the Scopus database were analyzed to identify research trends, geographic distribution, researcher collaborations, and frequently discussed topics. Findings indicate a significant increase in publications, particularly in the last five years, reflecting growing interest in reading literacy. The most cited article, "Closing the achievement gap through modification of neurocognitive and neuroendocrine function" by Blair & Raver (2014), highlights effective interventions in reading literacy. The journal "Reading Teacher" is the most productive source with 20 papers, and Florida State University is the most prolific institution. The United States contributes the most papers (326), showing leadership in this field. VOSviewer thematic mapping shows primary focuses on teaching practices, intervention effectiveness, and learning experiences. Density visualizations show that literacy practices, experiences, effects, and interventions are frequently researched themes. These findings offer valuable insights for researchers, educators, and policymakers to reimprove ading literacy in elementary schools, emphasizing the importance of institutional collaboration and evidence-based interventions in improving educational outcomes.

INTRODUCTION

Reading literacy is a fundamental competence that is important in elementary education. It influences students' academic achievements in language subjects and improves their comprehension across various disciplines (Kharizmi, 2015). Proficient reading literacy enables students to access, understand, and effectively utilize information, which is pivotal for future success (OECD, 2019).

Over the past decade, research on reading literacy in elementary schools has become a primary focus in educational studies across various countries, including Indonesia. This trend is driven by findings from international literacy assessments such as the Programme for International

Student Assessment (PISA), which indicate that Indonesia's reading literacy levels remain below the international average (OECD, 2018). The government and stakeholders have implemented various efforts to enhance reading literacy, including curriculum revisions, improving teacher quality, and providing adequate facilities and infrastructure.

However, despite numerous efforts, various challenges persist in improving reading literacy in elementary schools. These challenges include limited resources, varying teaching quality, and a lack of parental and community involvement in supporting children's literacy (Tahmidaten & Krismanto, 2020). Therefore, further research and in-depth analysis are needed to understand the dynamics and trends of reading literacy in elementary schools.

Previous studies on reading literacy in elementary schools have addressed several important themes. Research has shown that multimodal texts can enhance reading comprehension and student engagement (Walsh, 2011). Technology-based learning, such as reading apps and online platforms, has proven effective in improving students' literacy skills. Studies indicate that technology can provide personalized feedback and more engaging learning materials (Verma, Gupta & Illinich, 2024). Factors influencing reading literacy are also widely discussed in research. The home environment and parental support significantly impact children's reading abilities. Research shows that parental involvement in reading activities at home is crucial for children's literacy development (Sénéchal & LeFevre, 2002; Dini, 2022). Additionally, teaching quality is a key factor in improving reading literacy. Well-trained teachers with access to adequate resources are more capable of developing students' reading skills (Kraut, Chandler & Hertenstein, 2016).

A bibliometric analysis of reading literacy in elementary schools has not been used to identify research trends, geographic distribution, researcher collaborations, and frequently discussed topics in the literature. Bibliometric analysis allows for quantitative analysis of scientific publications, providing a broader and deeper understanding of research developments in this field (Gutierrez-Salcedo et al., 2018). While many studies use experimental designs and case studies to test the effectiveness of various learning interventions in improving reading literacy, bibliometric analysis enables researchers to measure the specific impact of interventions such as the use of educational technology or project-based learning approaches (Graham et al., 2017).

In this context, bibliometric analysis becomes a highly useful tool. It allows researchers to identify research trends, frequently discussed topics, and the relationships between studies in scientific literature. Using bibliometric analysis, we can better understand the research developments in reading literacy in elementary schools over the past decade, from 2013 to 2023. This helps identify research trends, prominent authors, and institutions significantly contributing to this field. The results of this study are expected to provide valuable insights for researchers, educators, and policymakers in their efforts to improve reading literacy in elementary schools.

METHOD

This study aims to review research on reading literacy in elementary schools using bibliometric mapping methods from a global perspective to analyze trends and the status of publication variables, citations, authors, journals, institutions, countries, and keywords. Bibliometric analysis is a popular statistical method for exploring and analyzing a large amount of scientific data in a particular field.

A total of 649 documents were collected from the Scopus database (http://www.scopus.com/). Scopus was chosen because it covers more document types than other scientific databases (Istiq'faroh et al., 2022). Scopus offers various disciplines relevant to the internationalization of higher education and provides easy access to bibliographic data (Zupic & Cater, 2015). Additionally, Scopus covers more educational disciplines than other databases, such

as Web of Science (WoS) (Ghani et al., 2022). Therefore, using the Scopus database allows researchers to clarify topics that may not be available in WoS.

Metadata was collected on June 10, 2024, with a publication year limit 2012 2022. All document types were considered (e.g., books, book chapters, reviews, conferences, editorials, and short surveys). The objective was to provide a deeper understanding and a clearer picture of this field over the last ten years. The following primary search was conducted to find the articles: TITLE-ABS-KEY ("reading AND literacy AND in AND elementary AND school"). The data was then exported in CSV (comma-separated values) and RIS (research information systems) formats. This study used Microsoft Excel to analyze the data. Most data were presented in percentages and frequencies. VOSviewer (https://www.vosviewer.com/) was also used to visualize bibliometric networks (Jan & Waltman, 2021), such as author collaborations, keyword co-occurrences, and citation analyses. The analysis results are presented in tables and network visualization maps. Node sizes represent the number of articles, while the thickness of lines between nodes indicates the intensity of collaboration. Keywords frequently coming up together in published documents are color-coded and grouped into clusters.

RESULT AND DISCUSSION

A. Publication and Citation Trends

A total of 649 documents were published from 2013 to 2023.

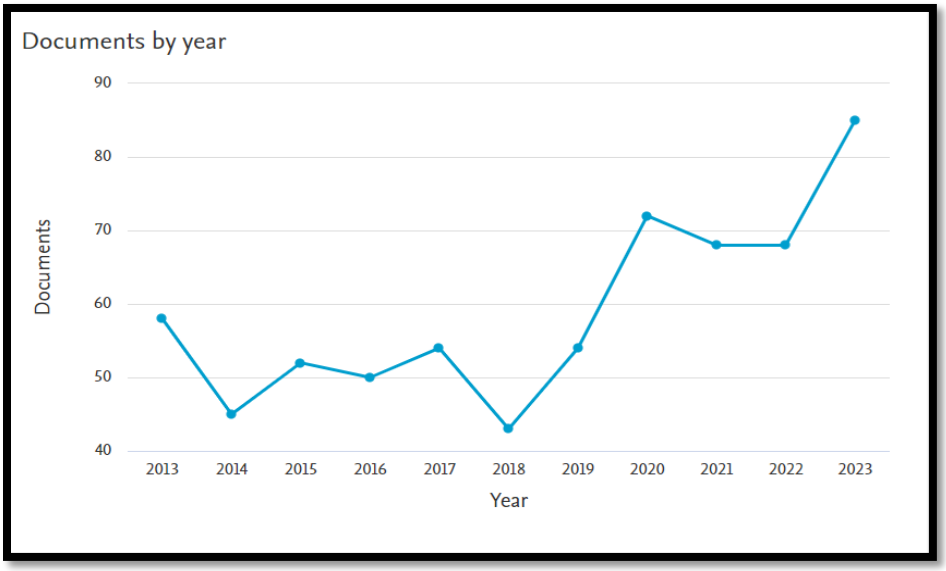

Figure 1. Documents from 2013 to 2023.

Figure 1 shows the annual number of publications and the cumulative citations on reading literacy in elementary schools over the years. The first publication on reading literacy in elementary schools was in 2013, and it had 58 documents. There were 259 documents in the first five years (2013-2017). In the second five-year period (2018-2022), the number of studies in this field increased significantly to 305 documents. In 2023 (up to the time of this study), the number of publications reached 85 documents. This growth indicates that reading literacy in elementary schools is attracting increasing attention from researchers.

B. Most Cited Documents

Table I lists the top ten most cited documents during this period. The most frequently cited document is the article by Blair & Raver (2014), titled "Closing the Achievement Gap through Modification of Neurocognitive and Neuroendocrine Function," with 298 citations. Other highly cited articles include "Cognitive Mechanisms Underlying Reading and Spelling Development in Five European Orthographies" by Moll et al. (2014) with 292 citations, and "A Meta-Analysis of Morphological Interventions in English" by Goodwin & Ahn (2013) with 243 citations.

Table 1. Top 10 Most Cited References

Author(s)	Title	Source	Citation
Blair & Rever (2014)	Closing the achievement gap through modification of neurocognitive and neuroendocrine function: Results from a cluster randomized controlled trial of an innovative approach to the education of children in kindergarten	*PloS one*	298
Moll et al (2014)	Cognitive mechanisms underlying reading and spelling development in five European orthographies	*Learning and instruction*	292
Goodwin & Ahn (2013)	A meta-analysis of morphological interventions in English: Effects on literacy outcomes for school-age children	*Scientific Studies of reading*	243
Wilkinson et al (2017)	Toward a more dialogic pedagogy: Changing teachers' beliefs and practices through professional development in language arts classrooms	*Language and education*	128
Niklas & Schneider (2017)	Home learning environment and development of child competencies from kindergarten until the end of elementary school	*Contemporary Educational Psychology*	
Ece Demir-Lira et al (2019)	Parents' early book reading to children: Relation to children's later language and literacy outcomes controlling for other parent language input	*Developmental science*	101

Author(s)	Title	Source	Citation
Genlott & Grönlund (2013)	Improving literacy skills through learning reading by writing: The iWTR method presented and tested.	*Computers & education*	91
Snow & Matthews (2016)	Reading and language in the early grades	*The future of children*	89
Hiebert & Mesmer (2013)	Upping the ante of text complexity in the Common Core State Standards: Examining its potential impact on young readers.	*Educational Researcher*	82
Shanahan &Shanahan (2014)	Does disciplinary literacy have a place in elementary school?.	*The Reading Teacher*	80

C. Most Productive Sources

The 649 documents were published across 142 different sources. Table II shows the four most productive sources, with "Reading Teacher" leading with 20 publications, followed by "Literacy Research and Instruction" with 14 publications, "Reading and Writing" with 11 publications, and "Reading Research Quarterly" with 10 publications.

Table 2. Top 10 Most Productive Sources

Source	Number of Document
Reading Teacher	20
Literacy Research And Instruction	14
Reading And Writing	11
Reading Research Quarterly	10

Thus, these four sources have published a total of 55 documents. Reading Teacher has the most articles with 20 papers. Literacy Research And Instruction ranks second with 14 papers. Reading And Writing is third with 11 papers. Finally, Reading Research Quarterly has published 10 papers.

D. Most Productive Institutions

A total of 122 institutions contributed to research on reading literacy in elementary schools. Florida State University was the most productive, with 17 papers, followed by The University of North Carolina at Chapel Hill with 12 papers, The University of Texas at Austin with 10, and Arizona State University with 9. Figure 2 shows the most productive institutions.

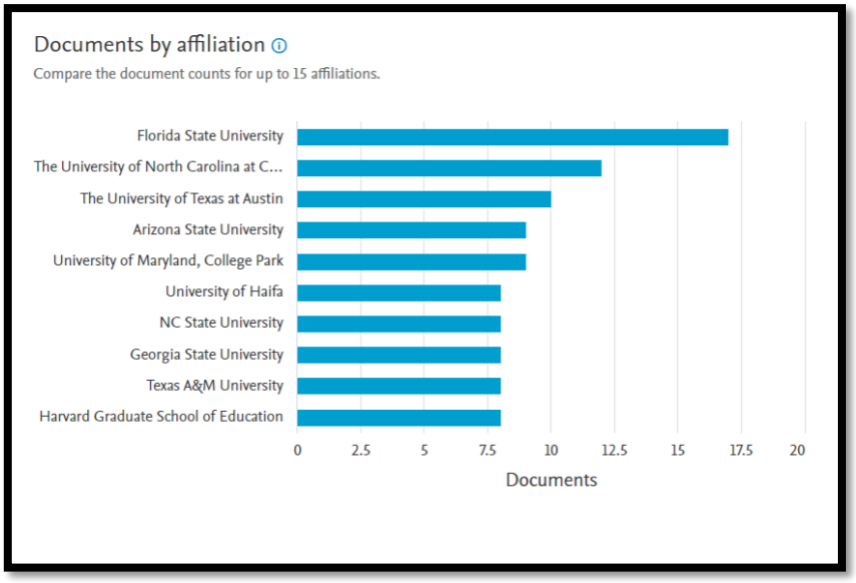

Figure 2. Top 10 Most Productive Institutions

E. Most Productive Countries

Researchers from 56 different countries contributed to this field. The United States was the most productive, with 326 publications.

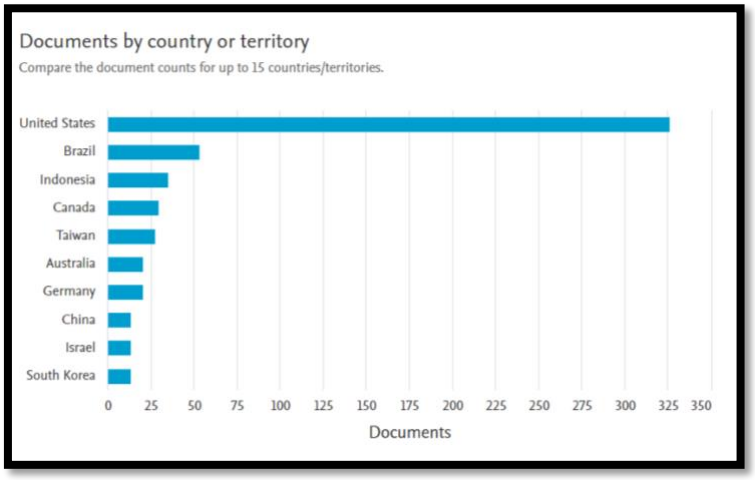

Figure 3. Top 10 Most Productive Countries

Figure 3 shows the top ten countries, with Brazil (53), Indonesia (35), and Canada (29) following the United States.

F. Most Influential Authors

Figure 4 shows the ten most productive authors in reading literacy in elementary schools from 2013 to 2023. Vernon-Feagans is the most active author with 11 publications, followed by Abrami, Al Otaiba, and Bratsch-Hines, each with 8 articles.

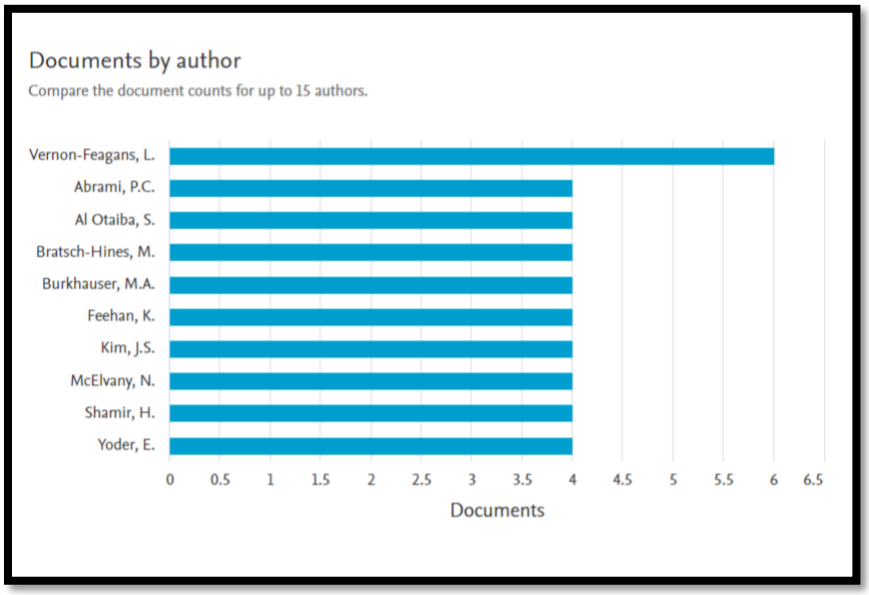

Figure 4. Top 10 Most Influential Authors

Vernon-Feagans is the most active author with 11 publications. Abrami, Al Otaiba, and Bratsch-Hines share the second position, each with 8 articles, indicating their active roles in this field. Map of Publication Theme after processing the Scopus data using VOSviewer software, a bibliometric analysis yielded 13,118 terms. The 345 closest terms were selected and displayed in Figure 5.

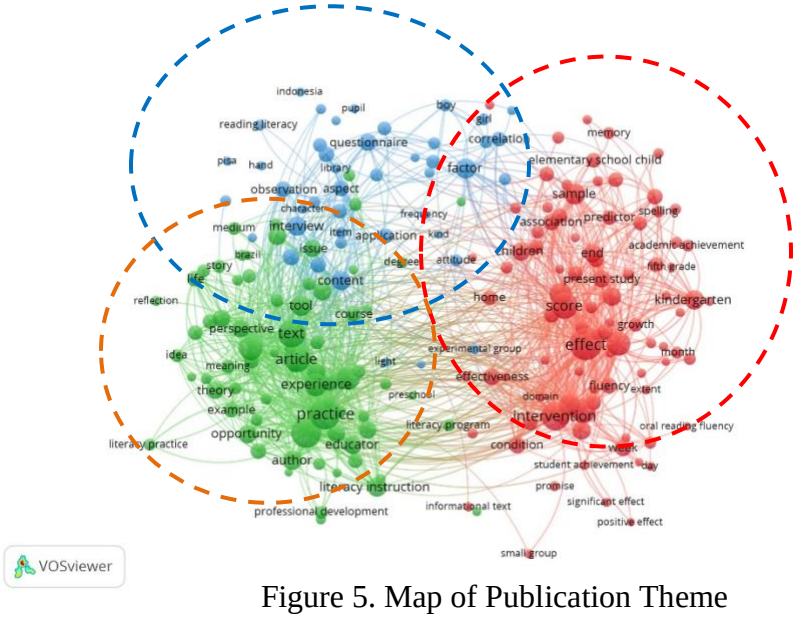

Figure 5. Map of Publication Theme

The visualization image you uploaded from VOSviewer shows an interconnected network of keywords within a study or research. This image is divided into three main color groups: green, blue, and red, each representing different thematic clusters based on keyword associations. Here is a more detailed explanation of each group:

1. **Green Cluster:**
    a. Literacy Practices: Dominant keywords in the green cluster relate to various practices used in literacy. This includes techniques and methods employed by educators to enhance literacy skills.
    b. Articles: Many keywords are related to articles, indicating that this research heavily references scientific articles or publications related to literacy.
    c. Experience: Keywords such as experience highlight a focus on literacy's learning and teaching experiences, from both educator and learner perspectives.
    d. Literacy Instruction: This keyword underscores various teaching strategies and instructions implemented to improve literacy.
    e. Other Keywords: Terms like "theory," "examples," "ideas," and "reflection" frequently appear, indicating a blend of theoretical and practical approaches in literacy education.
2. **Blue Cluster:**
    a. Questionnaire: Dominant keywords in the blue cluster include questionnaires, indicating the use of survey instruments in the research to gather data.
    b. Observation: This keyword points to the use of observational methods to examine literacy-related behaviors or activities.
    c. Content: Focus on literacy-related educational content, including reading materials and learning resources.
    d. Other Keywords: Terms like "library," "aspect," "character," and "interview" suggest that the research also involves various other aspects of literacy studies, including interviews and character analysis.
3. **Red Cluster:**
    a. Effects: This keyword indicates a focus on the outcomes or impacts of literacy interventions, both short-term and long-term.
    b. Intervention: Many studies focus on specific interventions to improve literacy and how these interventions affect learning outcomes.
    c. Scores: This keyword refers to the measurement of learning outcomes, such as test scores or other assessments used to gauge the success of interventions.
    d. Sample: This keyword shows that the research involves specific samples, such as children or students at the elementary and preschool levels.
    e. Other Keywords: Terms like "growth," "academic achievement," "reading fluency," and "effectiveness" indicate various aspects measured and analyzed in literacy research, particularly in the context of early childhood education**.**

Next, the heatmap visualization produced by VOSviewer is used to visualize the density of terms or keywords in a dataset. This heatmap uses colors to represent varying frequency levels or importance of the terms found.

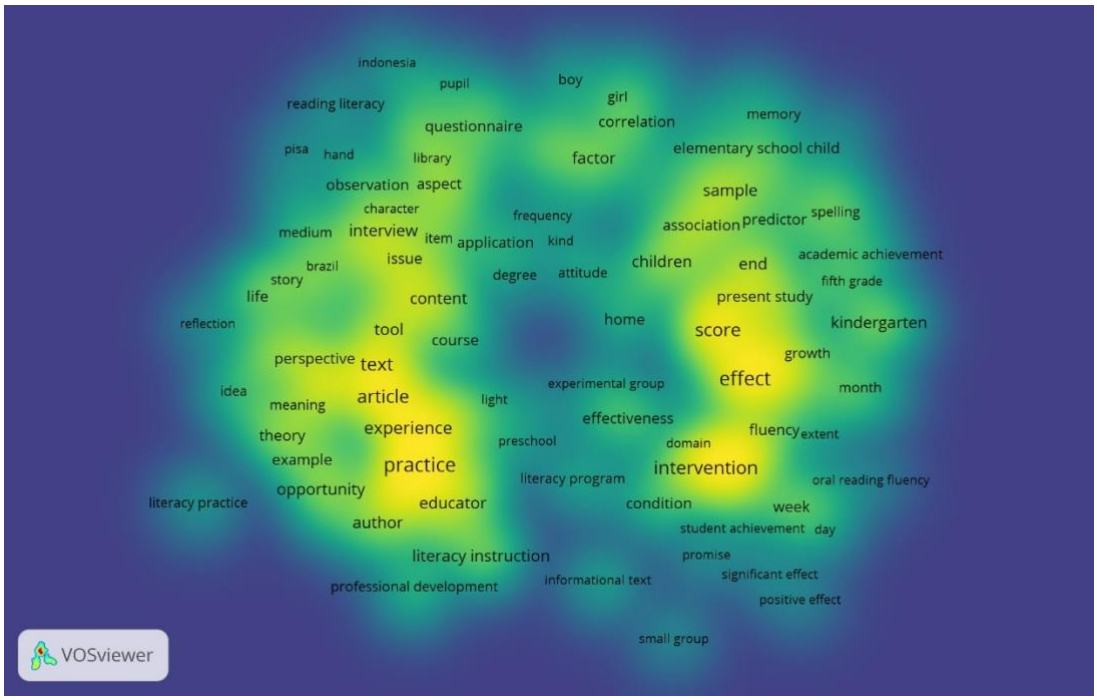

Figure 6. Visualization of VOSviewer Based on Heatmap

Figure 6 shows the density visualization of bibliometric analysis results using VOSviewer software. In this visualization, the density of research themes is indicated by bright yellow colors. Brighter colors suggest that these research themes have been extensively studied, while dimmer colors indicate that these themes are less frequently researched. Below is the mapping result of the heatmap

a. **Bright Yellow Areas:** These areas show the highest density or frequency of terms. This suggests that the terms in these areas appear very frequently in the dataset. In your visualization, bright yellow areas include terms such as "practice," "experience," "effect," "score," and "intervention." These terms are likely the most central and frequently occurring in the dataset.
b. **Light Green Areas:** These areas show a moderate density of terms. Their density is lower than that of the bright yellow areas, but they still represent significant terms within the dataset. Terms such as "article," "educator," "sample," and "children" fall into this category.
c. **Dark Green to Blue Areas:** These areas indicate lower term density. The darker the color, the less frequently the terms in that area appear. These areas are on the periphery of the map and include terms like "theory," "reflection," "idea," and "Indonesia." These terms appear less frequently in the dataset.

This study shows a significant increase in the number of publications related to reading literacy in elementary schools from 2013 to 2023. Of the total 649 documents published, there has been consistent growth, especially in the last five years. This increase aligns with the findings of

Cooper et al. (2014), who emphasized the importance of reading literacy as a foundation for future academic success.

The article "Closing the achievement gap through modification of neurocognitive and neuroendocrine function" by Blair & Raver (2014) is the most cited document with 298 citations. Other frequently cited articles include "Cognitive mechanisms underlying reading and spelling development in five European orthographies" by Moll et al. (2014) and "A meta-analysis of morphological interventions in English" by Goodwin & Ahn (2013). This research supports the theory that morphological interventions can significantly enhance literacy outcomes (Carlisle, 2010).

Reading Teacher is the most productive journal with 20 papers, followed by Literacy Research and Instruction and Reading and Writing. These journals serve as major platforms for literacy research, highlighting the importance of specialized journals in advancing the field of education (Hallinger, 2013). Florida State University is the most productive institution with 17 papers, followed by The University of North Carolina at Chapel Hill and The University of Texas at Austin. These findings underscore the importance of collaborative and institutional research in improving elementary school literacy (Shanahan & Shanahan, 2008; Ntelioglou et al., 2014). The United States is the most productive country with 326 papers, followed by Brazil and Indonesia. The dominance of the United States is attributed to greater resources and a strong focus on improving literacy (Lee & Spratley, 2010; Contesse et al., 2021). Vernon-Feagans is the most productive author with 11 publications, followed by Abrami, Al Otaiba, and Bratsch-Hines. This high productivity supports the theory that individual contributions from leading researchers significantly impact the advancement of a field of study (Huang et al., 2022).

The VOSviewer thematic map shows research that focuses on teaching practices and intervention effectiveness. Major themes include literacy practices, experiences, effects, and interventions, consistent with the importance of evidence-based interventions in enhancing educational outcomes (Darling-Hammond et al., 2020). The density visualization highlights the most researched themes marked in bright yellow, such as "practice," "experience," "effect," and "intervention." This emphasis is consistent with models of effective teaching (Joyce & Showers, 2002; Muijs et al., 2014).

CONCLUSION

This study reveals a significant increase in publications related to reading literacy in elementary schools from 2013 to 2023, with a primary focus on teaching practices, intervention effectiveness, and institutional collaboration. The United States emerged as the most productive country, followed by Brazil and Indonesia. The most cited articles emphasize the importance of effective interventions in improving literacy. Journals like "Reading Teacher" and institutions such as Florida State University play an important role in supporting and disseminating research in this field. The thematic map shows that literacy research focuses on practical teaching methods, learning experiences, and the outcomes of educational interventions. These findings provide valuable insights for researchers, educators, and policymakers aiming to improve reading literacy in elementary schools.

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