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Exploring Global Dynamics in Reading Literacy Research: A Bibliometric and Science Mapping Approach in Primary School Contexts

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Abstract. This study aims to map reading literacy research in the context of primary school through a bibliometric approach. The analysis and interpretation in this study used data from Scopus. Our data is focused from 2014 to 2024 by including the keywords reading literacy, primary school and elementary school. VosViewer software is used to map and identify publication trends, author collaborations, clusters and thematic keywords. This study's outcomes reveal that South African countries, Germany, the Russian Federation, Indonesia, China, Hong Kong, Taiwan, Slovenia, Australia and Norway are the most contributors to the theme of this study. Meanwhile, many authors have not recollaborated across regions and the theme of this research is still dominated in the scientific field of social science. Keywords such as mixed method, communicative competence, metacognition, reading fluency and project-based learning are potential words that are still rarely explored. These keywords are future research opportunities for the theme of reading literacy research in elementary schools.

Keywords: reading literacy, bibliometric, primary school, education, sociocultural.

INTRODUCTION

Literacy is considered the standard for the success of an educational implementation, so reading literacy is positioned as the spearhead of this success (Tunmer & Hoover, 2019; Sucena et al., 2023; Cremin & Scholes, 2024; Kellogg & Nicholas, 2025). Reading is a requirement that must be mastered for the change from focusing on reading proficiency to employing reading as a means of learning (van Bergen et al., 2021; Gupta et al., 2021; Deacon et al., 2024). The ecnchancement of cognitive aspects, language skills and critical thinking becomes a reference by placing reading skills as a way and facilities for the academic dimension throughout life (Hjetland et al., 2019; Lyster et al., 2021). In this position, primary schools have full involvement in helping children overcome various difficulties at the beginning so that potential problems that continue can be anticipated (Phan et al., 2021; Simpson & Cremin, 2022; Lan & Yu, 2023). This paradigm is an encouragement for the global community to pay more attention to reading skills and reading literacy as a goal by strengthening the quality of basic education.

Therefore, the current research endeavors to assess a global view in exploring the intellectual dimension, especially reading literacy in elementary schools. We have a reason, that reading

is not only a matter of arranging letters so that they have a sound, or sounding a symbol. However, in this process there is an element of interaction and interpreting the meaning of a text that is composed (Kearns & Al Ghanem, 2019; Ehri, 2020; Hjetland et al., 2020). Instead of sounding a symbol and a letter, literacy is actually about how to activate cognitive, metacognitive and sociocultural sensitivity, so that children can build an interpretation of meaning by using science in real life (Ellis & Bloch, 2021; Silverman et al., 2020; Chan & Aryadoust, 2023; Nash et al., 2025). Therefore, reading literacy exceeds what is called basic, but is a competency in understanding, interpreting and how to gain knowledge from what is called written text (Hovious, 2018; Rouet & Potocki, 2018; Hodgson, 2019).

On the other hand, reading literacy competence will be a gateway for children to open up other disciplines such as science, mathematics to social sciences (Liew et al., 2020; Kim et al., 2021; Stahl et al., 2024; Prastyaningrum et al., 2024). So when this foundation is not strong, what happens is that children will have difficulty understanding various kinds of complex concepts to interpret or interpret a learning discourse (Barber & Klauda, 2020; Feller et al., 2020; Magliano et al., 2023). This competency will be very useful for children as a way to build or connect a meaning in a real-life context, so that what is called critical thinking and lifelong learning can be achieved (Parry & Taylor, 2018; Rouet & Potocki, 2018; Nation, 2019).

This argument is a reason to explore how academics around the world engage themselves in learning reading literacy in primary school (Cremin & Scholes, 2024; Orellana et al., 2024). We use this approach to find out and describe what is being concerned by global academics regarding reading literacy in the context of elementary schools. Instead of being a form of understanding or depiction of the development of this theory, we try to explore research trends and look for opportunities that may not have been explored much (Merchant, 2021; Löfgren, 2023; Taylor & Digiacomo, 2023). This action is a form of fundamental step to understand the progress of concepts and theories that can be adapted to the educational environment (Scoppio & Covell, 2016; Herut, 2024; Vezhbovska et al., 2024). Through research trend analysis, researchers will have the capital to make arguments for challenges and gaps to be used as opportunities in future research from various sectors (de Oliveira et al., 2019; Denney & Powell, 2020; Lawn et al., 2020). To find out the direction of reading literacy research in primary school, these methods can be used to have a well established foundation.

We started from the results of the research by Lan & Yu (2023) who use bibliometric studies to show that the effectiveness of reading literacy is relevant to reading motivation, and the role of motivation is crucial. Therefore, mapping a global research network with a focus on reading

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literacy in the context of primary school will explain a comprehensive picture of the dominant themes and how they are developed (Westgate et al., 2015; Cosh et al., 2022; Dastane & Haba, 2022; El Archi et al., 2023). So, our argument becomes even stronger to make a picture of the global dynamics of reading literacy in the context of primary school through bibliometric analysis and scientific mapping. More specifically, we will seek to find out the authors, institutions, countries, disciplines, and trends most influential in this focus. The study is expected to have an impact on the paradigm, especially how research on reading literacy in primary schools develops and looks for loopholes for future research.

METHODOLOGY

This study uses bibliometrics to describe and analyze scientific literature sources (Aria & Cuccurullo, 2017; Donthu et al., 2021). The source of data used in this study comes from Scopus. We have our own reasons, because scopus serves as one of the world's leading bibliographic database of abstract and citation accuracy covering a wide global and regional (Prakash et al., 2015; Baas et al., 2020; Pranckut˙, 2021; Gusenbauer, 2024). This research was conducted with two main analyses, (1) using bibliometric mapping to find out and study reading literacy trends in the context of primary school and (2) analyzing keywords to identify clusters and get identification related to themes related to reading literacy in primary school. The VOSViewer device was used in this study to construct and visualize bibliometric network maps based on databases from scopus (Du et al., 2024; Liu et al., 2025). In conducting this bibliometric analysis, five steps are used, namely (1) specifying seacrh keywords, (2) pleminary search findings, (3) filtering of the search results, (4) assembling the initial dataset, (5) data analysis.

Defining the keywords

Keyword selection is an important basis for this analysis as a step to identify, extract, and analyze the appropriate literature. The most suitable keywords chosen then used in data search in scopus are *'reading literacy' and 'primary school' or 'elementary school'*. This research began by selecting the publication feature in the scopus bank data, after which the keywords were entered in the 'search documents' feature with a selection of article, tittle, abstract and keywords search formats.

Initial search results

The preliminary analysis revealed 192 articles without any time from articles, conference papers, book chapters, reviews, books, editorial, notes, conference rivews. Letter, short survey, erratum and retracted from all languages. These comprehensive search results can provide a basis for describing trends and conducting bibliometric analysis.

Refing the seacrh results

We adopt a framework from Donthu et al., (2021) that is (1) determining the purpose and scope, (2) establishing the methodological procedures for bibliometric study, (3) data compilation, (4) bibliometric investigation. The initial search was our first attempt to search the scopus database without filters. After that we apply the framework already mentioned, so we filter from 2014 to 2024. We have a reason for the year filter, which is because 2025 has not ended. After that, we locked and focused only using data from the research articles. So that 107 documents were obtained about reading literacy in elementary schools.

Initial data compilation

The preparation of this data is based on documents that have met the guidelines which are then used as a source of research materials. Scopus as the source of the data is downloaded into two files, namely (CSV) as a separate value and (RIS) for the research information system. CSV and RIS are important sources for providing bibliometric and bibliographic metadata (Ma & Yang, 2014).

Data analysis

The data analysis carried out in this study is science mapping and performance analysis. Use the VosViewer software to check co-authorship data, bibliography combinations, keyword occurrences and citations. The determination of the relationship between items is carried out by combining bibliographies such as publications, journals and authors. Keywords are examined to find out related patterns and developments in a particular field of research (Deng & Xia, 2020). So, this approach can be said to be suitable or even efficient for describing or identifying trends in certain fields of research. Analyzing citations can help detect popular research themes that are the focus of other researchers. After the analysis is completed, the results can be presented in the form of a table or visual map of the network.

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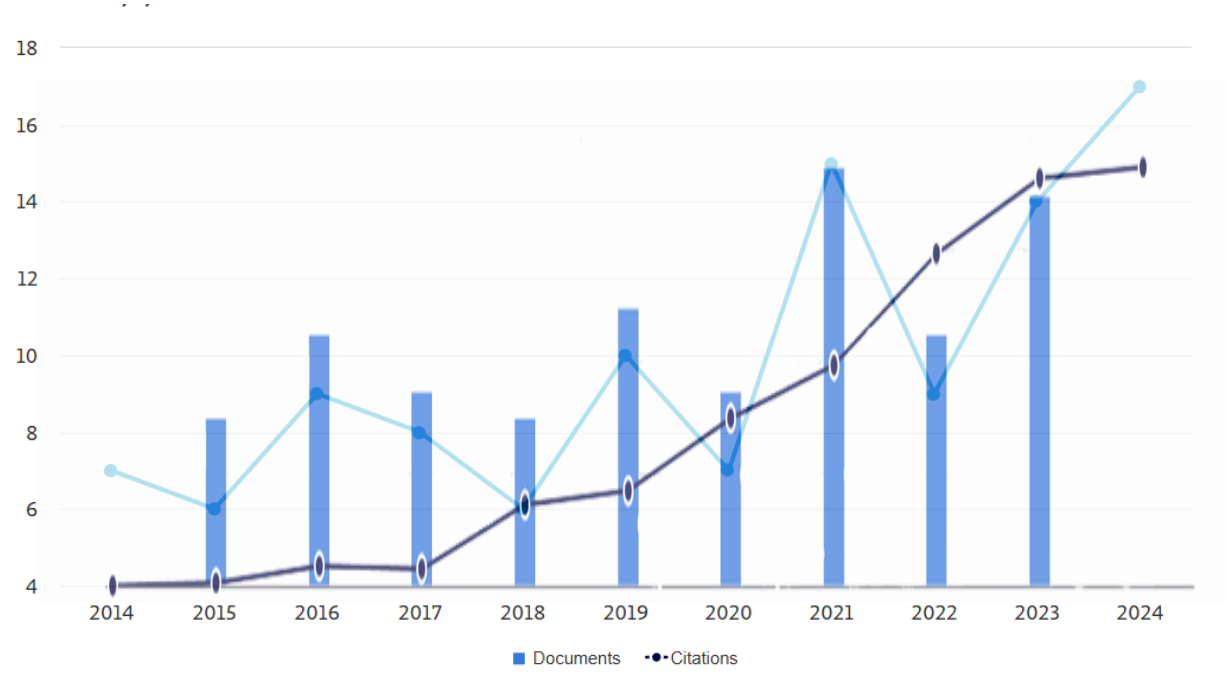

Figure 1. The development of published research and citations related to reading literacy in primary school.

Figure 1 explains that the research doc experienced ups and downs from 2014 to 2024. From 2022 articles on reading literacy research in elementary schools continue to increase until 2024. Meanwhile, from 2014 to 2018 citations in reading literacy research in primary school were relatively stable and slow, but from 2018 to 2024 the number of citations in the articles resulting from this research has increased rapidly. So, in that period, the trend of reading literacy research in primary school increased from year to year. The increase in the number of documents and the number of edits indicates that this research trend is getting the attention of global academics.

Figure 2 shows the attention of countries around the world focusing on this field of research. South Africa dominated this research trend during the period 2014-2024 with authors from the country publishing 18 research articles. The next country to publish articles in this research focus is Germany with 11 documents, the Russian federation with 9 articles and Indonesia with 8 articles. Meanwhile, the contributions of China, Hong Kong and Taiwan as many as 6 articles were published. A more moderate contribution was Slovenia by publishing 5 documents, while Australia and Norway as many as 4 articles on the field of reading literacy research in primary school.

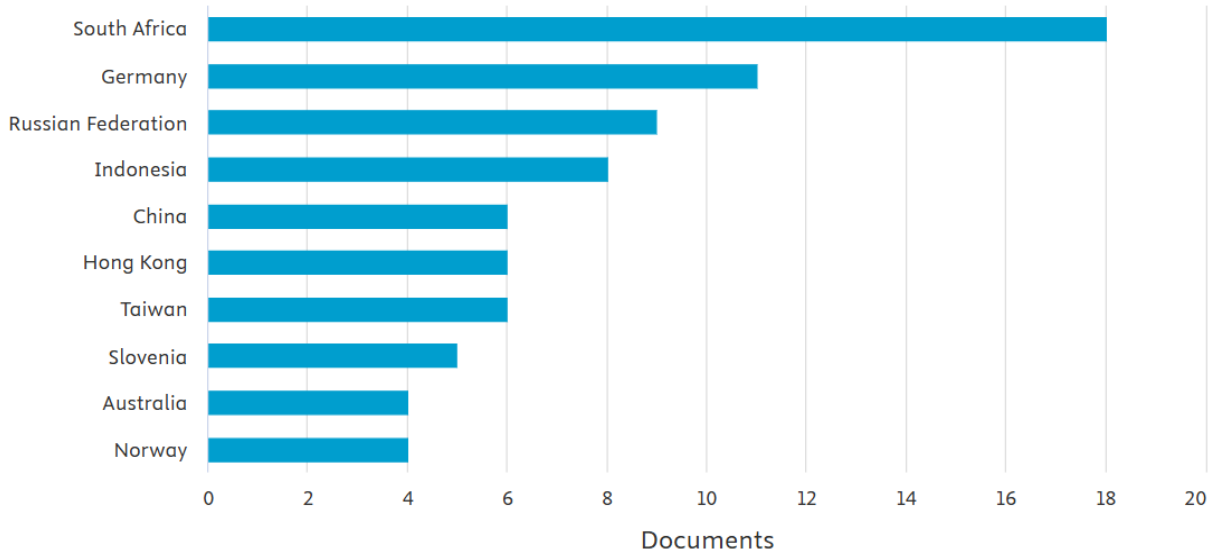

Figure 2. Published articles on reading literacy in primary school by country

Based on figure 2, the dominance of South Africa which published 18 articles on reading literacy in elementary schools, this country in that period had a high concentration in this field of research. The concentration seen from the number of documents published shows that the discourse on reading literacy in primary school in the country has its own element of seriousness or emergency. Meanwhile, other countries that are not as large as South Africa are relatively stable and still contribute to this field of research. When the data is reviewed based on the 2022 PISA results, countries such as Germany to Norway are on average reading scores (OECD, 2022).

Then draw 3 articles on reading literacy in primary school by affiliation, Technische Universiät Dortmund published 8 articles. Meanwhile, universities from African countries, namely the University of South Africa, have 7 documents and the University of Pretoria have published 3 articles. The University of Hong Kong, HSE University and the Russian Academy of Education published 4 papers on the field of reading literacy research in the context of primary schools. With the number of publications of 2 to 3 documents, it shows more moderate, namely Universitet i Oslo, University of Witwatersrand Johannersburg, Federal Scientific Center of Psychological and Interdiciplinary Research, and Shaanxi Normal University.

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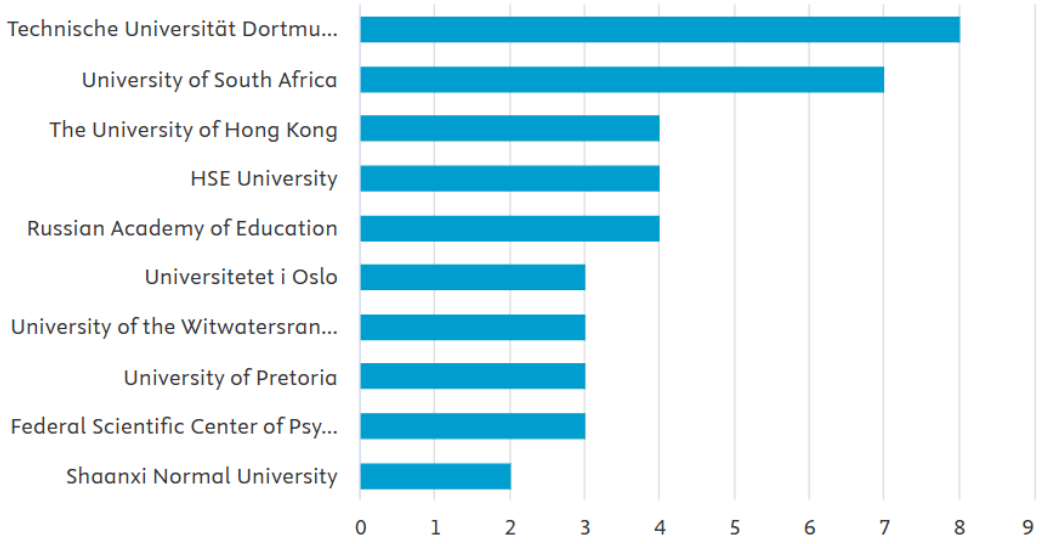

Figure 3. Publication of reading literacy in primary school by affiliation

Figure 4 shows the field of research that studies and is interested in reading literacy in primary school. The largest portion is in the field of social science research as much as 60.4%, this figure is not surprising because the education dimension is indeed included in this category.

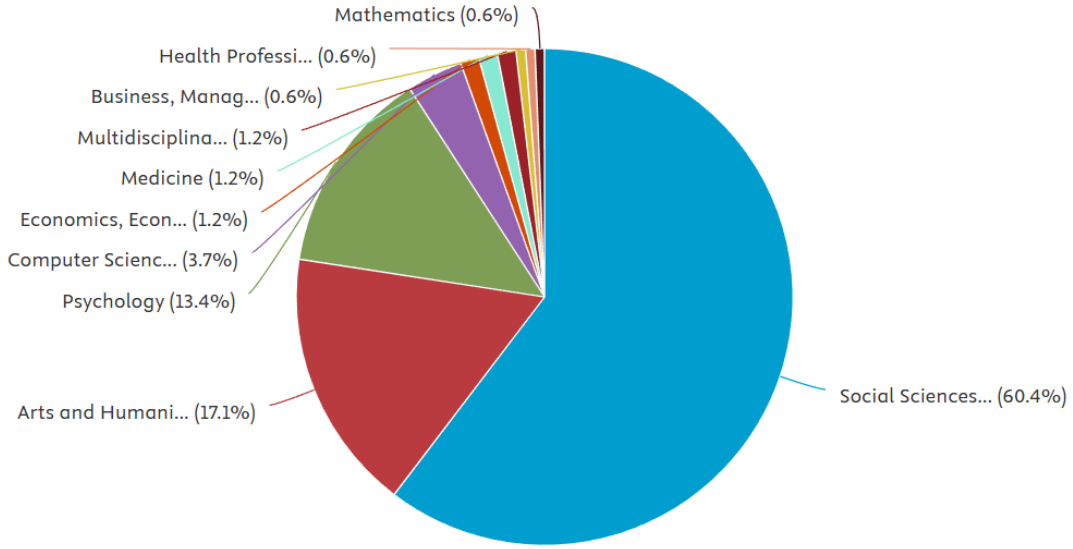

Figure 4. Publication of reading literacy in primary school based on research fields.

Next is the field of arts and humanities with a proportion of 17.1% of the total articles published. Other fields also contributed, such as psychology as much as 13.4%, computer science 3.7%,

economics-econometric and finance 1.2%, medicine 1.2%, multidisciplinary 1.2%. Meanwhile, in the fields of business-management and accounting, health proffesions and mathematics are less, at 0.6%. The percentage contributed other than the field of social science is still relatively small, meaning that the opportunities for reading literacy in primary school are wide open from various disciplines. Especially looking at the development of the 21st century which requires many points of view to develop or solve a problem from many perspectives. Of course, the picture of this percentage is a great opportunity for future research.

RESULTS AND DISCUSSION

Co-authorship analysis

This technique is a way to conduct scientific mapping related to authorship along with the assumption that the articles that have been published and cited have the same theme (Hjørland, 2013; Andersen & Swami, 2021; Shashi et al., 2021). Often this technique is used for how social interaction is presented between authors related to a particular research theme (di Bella et al., 2021; Lee et al., 2023). Then the results of the analysis are used to identify and measure the structure of a particular research study such as the theme or focus of the research (Rossetto et al., 2018; Alan & Köker, 2021; Mokhtarpour & Khasseh, 2021). In this discussion, the context of joint publication is that two scientific works are considered interconnected if they are listed together in the bibliography of a publication (Abbasi et al., 2012; Uddin et al., 2013; Blaschke, 2024). There are different levels of collaboration between researchers in each discipline, this indicates that the more often researchers collaborate, the greater the research to be achieved (Fiscarelli et al., 2021; Djeki et al., 2022). However, there are differences in collaboration between disciplines due to several reasons such as demographics, disciplinary expertise, duration of contact or homophilia (Eberle et al., 2021; Brown et al., 2021; J. Zhang et al., 2025).

There are 106 names of authors who contributed to research on this topic independently or collaborated in the period 2014-2024. The visualization of figure 5 shows that there is a network of common authorship that forms a circle pattern that forms a circle as a sign of the relationship between writers or researchers. The data shows that at least these names have written their own journals or collaborated. The data results showed that of the 106 authors, clusters with different colors formed them. Items or nodes provide author network markers with different colors, sizes and spacing. Each item or node has a proximity or distance that

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indicates the degree of relatedness. A strong item or node, for example, can be seen in the gray circle in the middle, for example, Hemmerechts, K is a doctor from Vrije Universiteit Brussel, Belgium and is actively writing with Agirdag, O from the Universiteit van Amsterdam, Netherlands and Kavadias from Vrije Universiteiy Brussel, Belgium at the research center of reading literacy at the primary school. These nodes and networks show a relationship between authors or collaborations who conduct joint research and publish joint articles. But when we look at the lower edge nodes like Ivanova, A is an affiliated author at HSE University Moscow Russia who collaborated with Kardanova, E from HSE University Moscow Russia. We tried to browse through the articles published by Ivannova, found 3 articles on reading literacy in elementary school. The three articles were co-authored with Antipkina of HSE University Moscow, and the other was co-authored with Kardanova-Biryukova of Moscow City University.

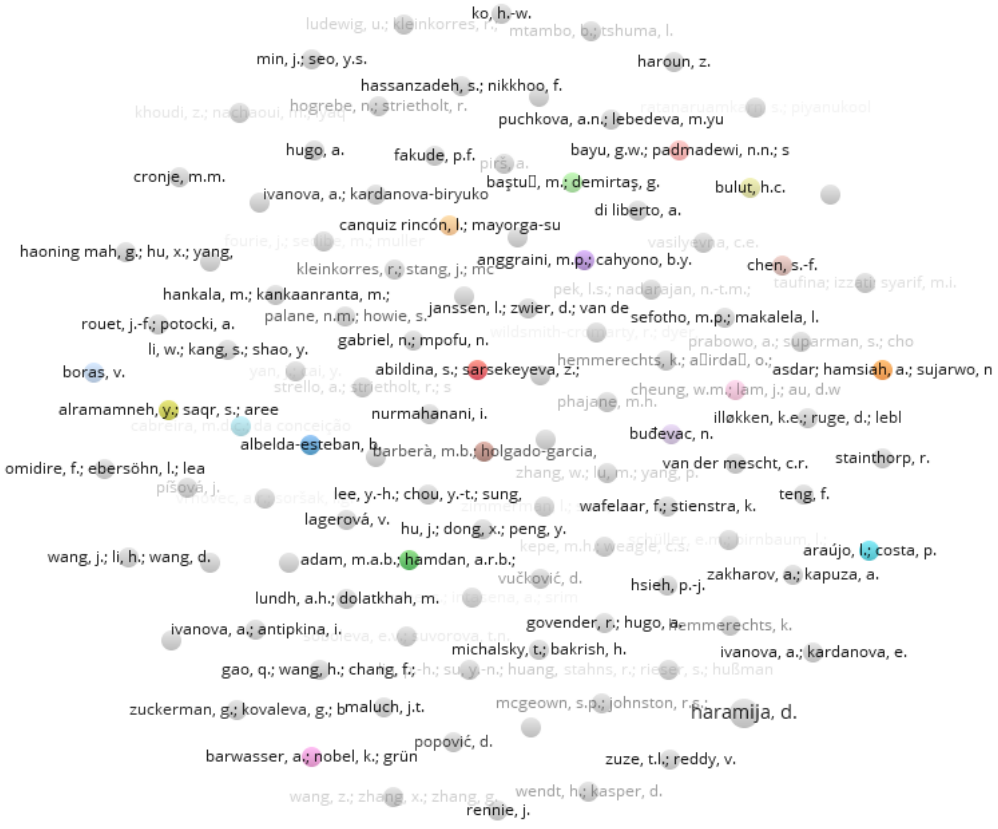

Figure 5. Map of the Joint Writing Network on the topic of reading literacy in primary school

However, Figure 5 also shows that some of the circles are completely disconnected and far apart. This shows that there is no collaboration between writers. When observing the nodes on the upper right edge of one of them, you see that the items are far apart, which indicates that there is no co-authorship or collaboration relationship in writing the article. The co-

authorship visualization based on VosViewr's analysis shows identification as well as opportunities, especially for authors to collaborate (Scarazzati & Wang, 2019; Sci et al., 2021). The more researchers are involved in cooperation or collaboration networks, the more the quality of the organization will also increase, it can be in terms of quality or the number of publications (Thelwall et al., 2023).

Most influential researchers

Influential documents are shown by the number of publications, while the author or influential source is shown in the form of citations. Based on the source of 10 data sources from Scopus, the highest citation can be taken which can be seen in table 1 showing influential documents related to reading literacy in primary schools written by

Table 1. influential documen and researcher with focus reading literay in primary school

No	Year	Authors	Title	Source	Cites	Publisher
1	2017	Hemmerechts, K et.al	The relationship between parental literacy involvement, socio-economic status and reading literacy	Educational Review	129	Taylor & Francis
2	2020	Teng, F.	The benefits of metacognitive reading strategy awareness instruction for young learners of English as a second language	Literacy	63	Wiley one library
3	2015	McGeown et.al	The relationship between young children's enjoyment of learning to read, reading attitudes, confidence and attainment	Educational research	60	Routledge
4	2015	Araújo& Costa,	Home book reading and reading achievement in EU countries: the Progress in International Reading Literacy Study 2011 (PIRLS)	Educational Research and Evaluation	42	Routledge

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No	Year	Authors	Title	Source	Cites	Publisher
5	2014	Zimmerman & Smit	Profiling classroom reading comprehension development practices from the PIRLS 2006 in South Africa	South African Journal of Education	30	Foundation for Education Science and Technology
6	2018	Rouet & Potoci	From reading comprehension to document literacy: learning to search for, evaluate and integrate information across texts / De la lectura a la alfabetización documental: aprender a buscar, evaluar e integrar información de diversos textos	Infancia Y Aprendizaje	28	Routledge
7	2014	Zuze & Reddy	School resources and the gender reading literacy gap in South African schools	International Journal of Educational Development	25	Elsevier BV
8	2018	Wang et.al	Bridging the Rural-Urban Literacy Gap in China: A Mediation Analysis of Family Effects	Journal of Research in Childhood Education	21	Taylor and Francis
9	2020	Govender & Hugo	An analysis of the results of literacy assessments conducted in South African primary schools	South African Journal of Childhood Education	17	AOSIS
10	2021	Lim & Tan	Curriculum and assessment mismatch: Examining the role of images in literacy assessments`	Australian Journal of Language and Literacy	15	Australian Literacy Educators' Association

Based on data from scopus, 106 names of authors in this topic have been verified with several articles with the most frequently cited articles. Among the names, one of them is Hemmerechts, K et.al with an article entitled 'The relationship between parental literacy involvement, socio-economic status and reading literacy' is the publication on this topic with the highest citations. Furthermore, with a total of 63 citations from the publisher Wiley One Library from the literacy

journal. Here is an article written by McGeown et.al with 60 citations, followed by Araújo & Costa with 42 citations. And so on until the 10th author, Lim & Tan with a total of 15 citations published by the Australian Literacy Educators' Association, from the Australian Journal of Language and Literacyy. Article written by Hemmerechts et al., (2017) those who write reading literacy in children have a relationship with parents or socio-economic. Therefore, it emphasizes that reading literacy is influenced by socioeconomic and family dimensions. The number of citations indicates that the research has an impact on the development of theory and practice, especially in this topic. Meanwhile, the distribution of other articles varied greatly between 2014-2024 which indicates the continuity of research interest during that period. In addition, the representation of articles from various countries across continents indicates that there are different global aspects and local contexts.

Keyword analysis of reading literacy topics in primary school

The data that has been obtained is then checked through the VosViewr tool by selecting the data option 'create a map based on text data'. This step has the intention of building a network or basic relationship between keywords using textual data from scopus. This determination is based on the title or abstract. The calculated data uses a full calculation approach. Using co-corence analysis with all keywords will show the organization into different clusters or groupings which can be seen in Figure 6. The emergence of analysis data from VosViewer will be categorized through clusters containing several keywords (Goksu, 2021). The cluster in question in this case is a set of items contained in the visualization that are used as a group and contain several parts such as authors, journals or keywords that are interrelated.

This co-occurrenceence analysis can be seen in the visualization of figure 6 which provides an overview of the network or relationship between terms and a reading literacy study in primary school throughout 2014-2024. The dataset entered into VosViewer from scopus totals 107 articles forming 7 clusters. Each knot that appears shows a different color from the other nodes. For example, cluster 1 is red with keywords such as gender, gender differences, institutional quality, reading achievement, reading motivation, stundets rating and validity. Cluster 2 contains the keywords African languages, home literacy, preshool education, primary school, reading development and reading literacy with green nodes.

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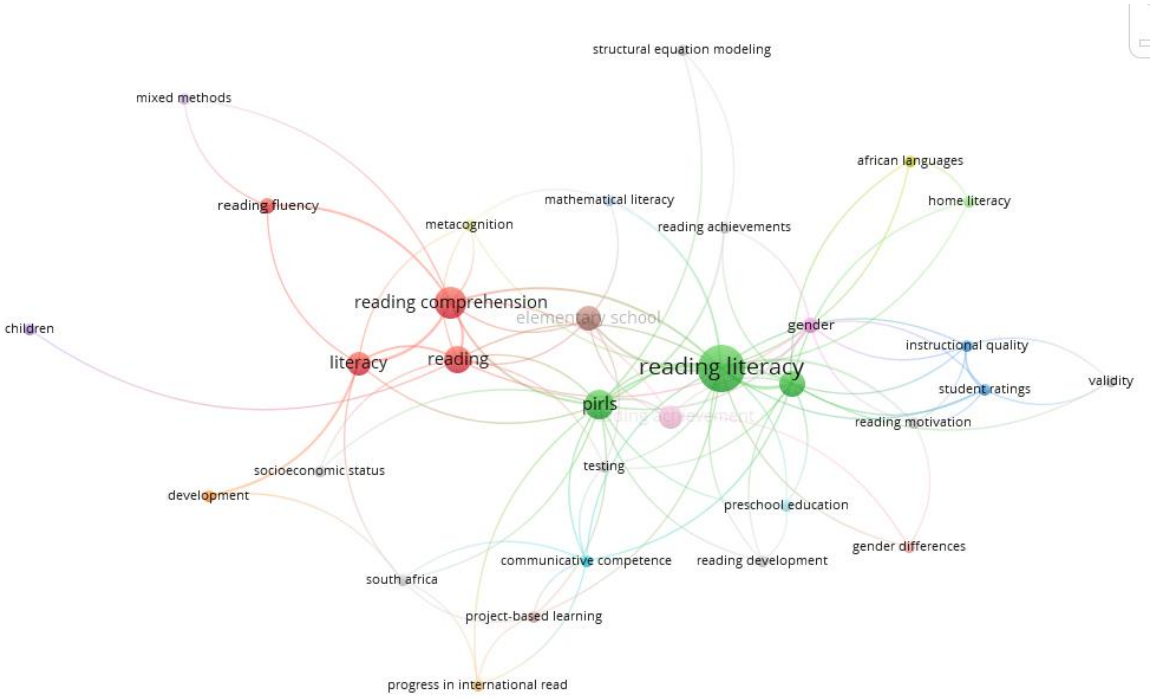

Figure 6. Network visualization Keyword occurrence

Cluster 3 is shown in blue containing the keywords communicative competence, development, literacy, progress in international, project-based learning, and south africa. Cluster 4 has a yellow color with the keywords elementary school, mathematical literacy, metacognition and testing. Cluster 5 with purple contains mixed methods, reading comprehensions, reading fluency and secondary education. Cluster 6 is navy blue containing the keywords children, reading and socioeconomic status. The last is cluster 7 with orange color containing the keywords prils, reading achivements and structural equation modeling.

The next analysis using the VosViewr overlay device of the year was obtained from a bibliometric analysis using data from scopus. How the development of the themes of publications on this topic can be read to find out the development. Through coloring from dark blue to green and finally is yellow. In this overlay, the color shows the reviewed keywords from the year. For example, keywords such as reading motivation and literacy are marked with dark blue node colors, meaning that these keywords appeared in 2018 and back. While keywords such as primary school have nodes with a light green color. The light green color can be interpreted that the word appeared after 2021. Meanwhile, several keywords that have yellow in color after 2022 are metacognition, testing, socioeconomic status, communicative competence, home literacy and african languages.

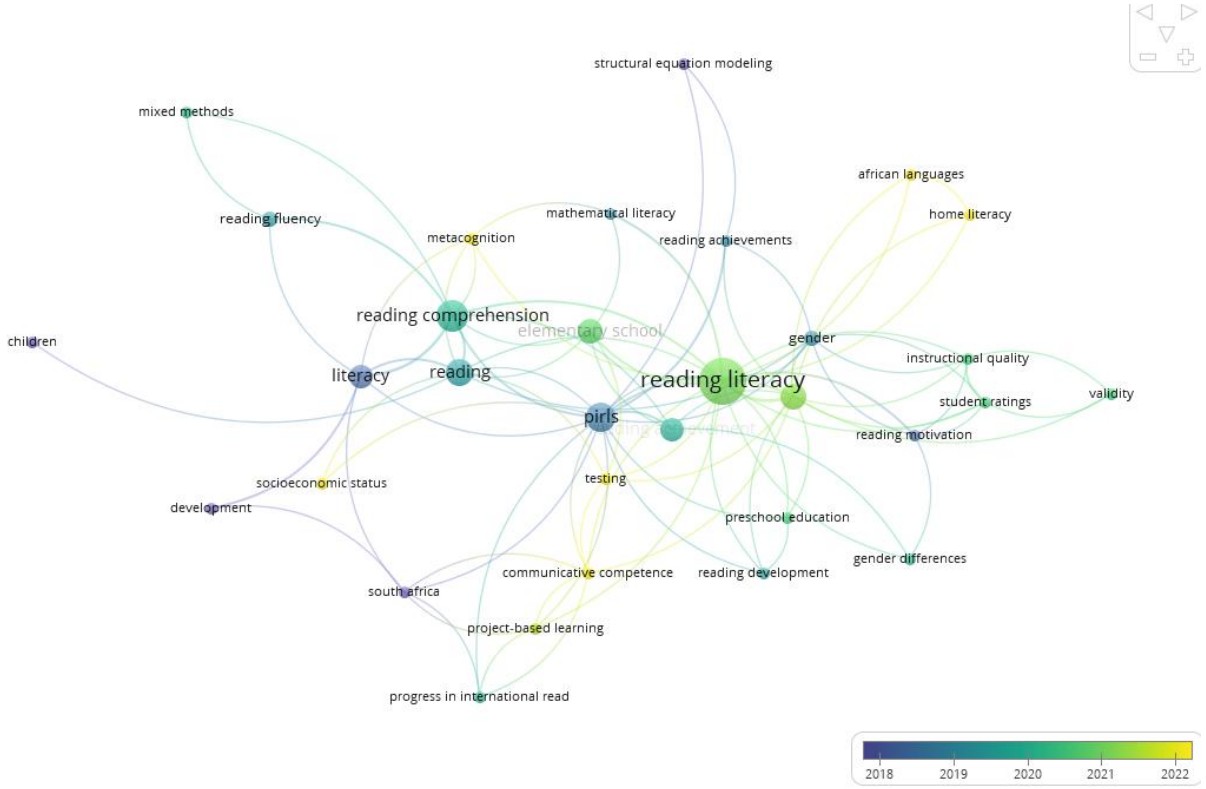

Figure 7. Overlay visualization map of keyword occurrence by year

If you search for one of the nodes, for example, which is yellow like metacognition from Scopus data, this keyword only appears 7 documents from 2017 and the most in 2024. The facts, metacognition, which is the basis of consciousness, has a relationship with reading which functions as a form of monitoring their understanding and adapting it through strategies (Teng, 2019; Michalsky & Bakrish, 2024). The researchers used these arguments and beliefs to relate them to reading literacy. Not only that, keywords that have a yellow color such as testing, socioeconomic status or home literacy will have their own arguments when they are associated with the largest node, namely reading literacy in the context of primary school.

Understanding this meaning will also be more comprehensive by looking at the keyword density analysis in figure 8. In the image, there are nodes or keywords with bright and high color contrasts among other keywords in desnity visualization. Nodes or keywords that have blue color are interpreted as the density of the recede, while green to yellow indicates high density. So, the closer a node or keyword is to the sun point or yellow dot, the higher the density and weight. And vice versa, if the distance of a node is not close to the source of the sun or the yellow dot, then the lower the density. Based on desnity visualization, the largest node is reading literacy, with several other large nodes being primary school, prils, reading comprehension, reading achivement, literacy and elementary shool. Some of these words

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have a high density with the brightest colors among the other nodes. The light of the node shows the point where there is, the largest term or other terms around it will have a high weight. It can also be said that keywords with such bright nodes will often appear with other keywords that will be part of the main theme of the research.

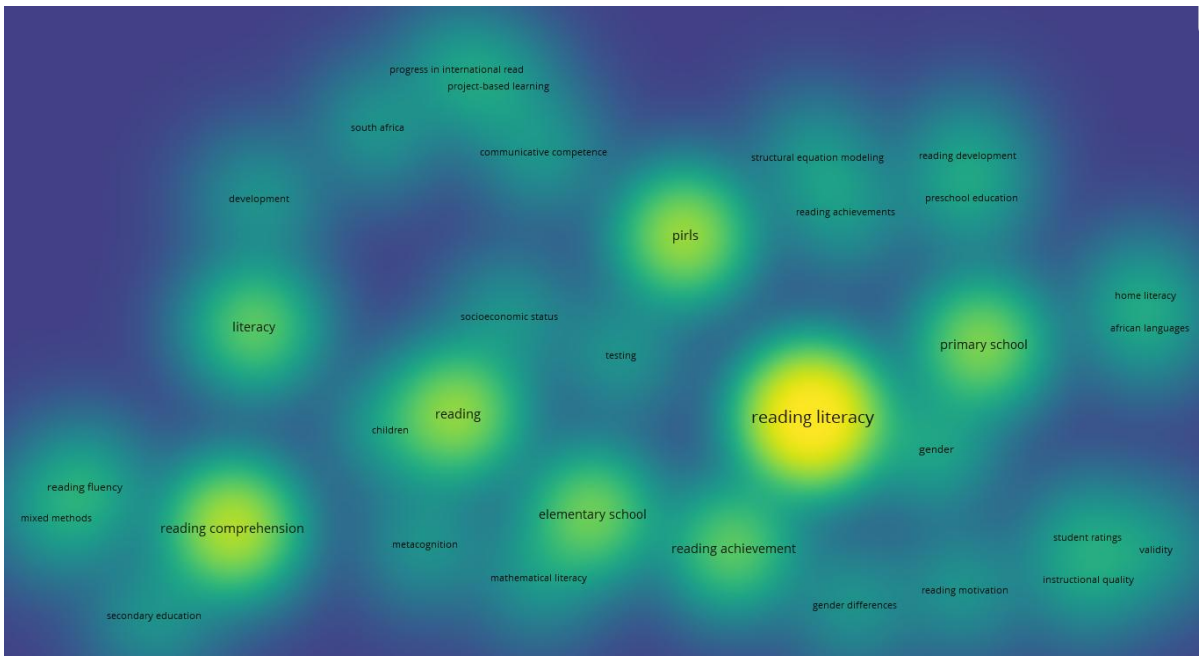

Figure 8. Keyword occurrence density visualization map

However, when looking at the visual map, words that have low density or weight are for example mixed method, home literacy, project-based learning and reading motivation. This illustrates that the word is not often associated with major themes such as reading literacy or primary school. The low of a node or keyword can be suspected that the word has started to be abandoned, or the word is starting to appear as a keyword that will dock at the center of the yellow node. There are many possibilities for nodes that are far from the center, the bad thing is that these nodes are considered by many researchers to be irrelevant to the main theme, or even the word has its own challenges that cause it to be rarely explored.

More specifically, when mixed methods go further from the main theme, it can indicate that methodological aspects that are rarely used in reading literacy research in primary school contexts. The other dark side of the node is structural equation modeling which is located far from the large node. The method is also not often used with the main keyword, namely reading literacy in elementary schools based on the visualization. However, when you look at other dark and distant nodes such as communicative competence, metacognition, reading fluency which have a relationship with reading. Especially in this case, the three words have

similarities, namely how the communication function, cognitive process and consciousness function in the field of reading (Vulchanova et al., 2019; Festman, 2021; Saito, 2021). Even when we look more closely, there are vague keywords, namely project-based learning that is very much related to learning. After all, project-based learning in primary schools supports children to practice and communicate information in real life (Lavonen et al., 2022). When we tried to dig deeper, we entered the keywords "reading literacy" and "primary school" or "elementary school" and "project-based learning" in the scopus database without any filters, only 4 documents were found. However, if you search the data in Scopus by entering the keywords "primary school" or "elementary school" and "project-based learning", 316 documents are found. Meanwhile, the combination of the keywords "reading literacy" and "project-based learning" was only found in 5 documents.

So, when we put together an overlay map and desnity visualization to see project-based learning assuming that the word is far from the main node, it has not started to be abandoned, but rather the word is trying to get closer to the main node. Instead of reading trends about the theme of reading literacy research in primary school, new reading opportunities are also obtained. Reading this mapping means that we must also be sensitive, accept reality, understand and find an idea about the theme of reading literacy in elementary school.

CONCLUSION

The analysis of the theme of reading literacy in elementary schools in the vulnerable time of 2014-2024 can be concluded into several things, namely, the average publication rate is between 9.7 articles and has increased in recent years. South African countries, Germany, the Russian Federation, Indonesia, China, Hong Kong, Taiwan, Slovenia, Australia and Norway publish more articles than any other country, with the most dominance being South Africa. Social science dominates the scientific field of reading literacy research in elementary schools, while other fields of science only show participation. In addition, the author collaborates with other authors, but cross-regional collaboration is still rare. Meanwhile, based on visual map analysis, VosViewer produces several potential keywords, including mixed method, communicative competence, metacognition, reading fluency and project-based learning. Combining all the results of the analysis allows the development of reading literacy in elementary schools to further encourage more holistic literacy growth, especially in elementary schools.

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Limitations

This research has several limitations, including that Scopus is the only database used. The term reading literacy is only associated with the scope of basic education, despite the fact that the word is related to many other fields. The approach is carried out using only bibliometric analysis, so this can be combined with systematic literature review (SLR) so that the results are more comprehensive.

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