ELEMENTARY *Islamic Teacher Journal*
E-ISSN : 2503-0256 / ISSN : 2355-0155
Volume 11 Number 1 January - June 2023 (PP. 33-56)
http://dx.doi.org/10.21043/elementary.v11i1.19411
Diakses di : http://journal.iainkudus.ac.id/index.php/elementary

A Bibliometric Review of Learning Approaches in Primary Education Level: Examining the Indonesian Contribution to the Field

[1]Syamsul Ghufron, [2]Afib Rulyansah
[1,2] Universitas Nahdlatul Ulama Surabaya, Indonesia
**Coorespondence: syamsulghufron@unusa.ac.id*

Abstract

It is crucial to employ contemporary pedagogical approaches in primary education to cultivate capable and skilled young individuals who are equipped to excel in competitive environments. Despite a significant amount of field research on the use of learning approaches in primary education, there is a lack of studies that consolidate the findings through bibliometric techniques. The main aim of this bibliometric investigation is to identify prevalent research patterns and evaluate Indonesia's scientific contributions to the study of learning approaches in primary education. The study employs bibliometric analysis, which includes four stages: initial search, application of inclusion and exclusion criteria, data extraction, and data cleaning. Data analysis is conducted using Publish or Perish, Ms. Excel, and Chat GPT. This research analyzed 549 papers published over 56 years, which gathered 4552 citations. The citation frequency peaked in 2008 with 690 citations. The 17 most influential authors came mainly from Indonesia and the United States. Most of the most-cited works were published more than ten years ago. The British Journal of Educational Psychology and Switzerland's Sustainability Journal lead in publishing educational research articles. Six out of the top 11 institutions in learning approaches research are Indonesian universities, showcasing Indonesia's dominance in the field. Surpassing other countries like the United States, Turkey, Spain, the UK, Australia, and China, Indonesia has achieved significant success.

Keywords: Bibliometric, Learning Approach, Primary Education, Indonesian Contribution

INTRODUCTION

Education in elementary schools is the foundation for a child's academic and social development. Therefore, the deployment of a proficient pedagogical methodology bears great significance in augmenting the caliber of education at this stage. In this regard, the learning approach plays a pivotal role in enhancing students' academic performance and honing their skill set. (Wahono *et al.,* 2020). In practice, student-centered learning approaches such as cooperative, collaborative, and inquiry-based learning approaches have been shown to increase student engagement, creativity, teamwork skills, and their academic achievement (Johnson *et al.,* 2005)(Almulla, 2020). In addition, Alternative learning approaches like blended, mobile, and game-based learning can improve student engagement and outcomes (Abdul Jabbar & Felicia, 2015; Justo *et al.,* 2022; Krouska *et al.,* 2022). Therefore, the implementation of suitable and avant-garde pedagogical approaches within elementary education is a crucial component in cultivating a proficient and skilled young cohort who are equipped to thrive in upcoming competitive landscapes (Herodotou *et al.,* 2019).

In the context of state of the art, many recent studies have highlighted the importance of learning approaches in elementary schools. Invernizzi *et al.* (2019) investigated the effectiveness of a multi-teaching styles approach and active reflection on improving fitness level, motor competence, enjoyment, amount of physical activity, and children's perception of physical education lessons in primary school children, finding that the approach led by specifically trained educators was effective in promoting positive physical literacy development and healthy lifestyles. At the same year , Nurlaily *et al.* (2019) examined the obstacles encountered by elementary school teachers in implementing a problem-based learning model in mathematics, which include difficulties in planning and time management, guiding students in group activities, encouraging student participation, and providing effective feedback.

In 2020, a number of researchers investigated the learning approach in primary school. Siwawetkul & Koraneekij (2020) examined the impact of a 5E instructional model utilizing mobile technology on the reasoning ability of lower primary school students and found that it had positive effects on their reasoning ability, intrinsic motivation, reasoning behaviors, and achievement. Furthermore, Aiman *et al.* (2020) investigated the influence of using the 'Process Oriented Guided Inquiry Learning'

(POGIL) model assisted by realia media on improving scientific literacy and critical thinking skills of primary school students for the topic of energy, with results showing a significant improvement in both scientific literacy and critical thinking skills for the experimental group compared to the control group. Despite the abundance of field research regarding the employment of learning approaches in primary education, studies that synthesize findings through bibliometric methods are notably scarce.

Bibliometric analysis exhibits several distinctive attributes in contrast to conventional content-based analysis and manual coding of textual data sources. Firstly, it is particularly suitable for processing large-scale datasets, while manual technologies are commonly limited by the continuing growth of literature data, especially with the rise of "big data" (Ellegaard & Wallin, 2015; Linnenluecke *et al.,* 2019; Rojas-Sánchez *et al.,* 2022; Szomszor *et al.,* 2021). Additionally, bibliometric analysis can classify indicator elements and provide a descriptive overview of publications, citations, authors, journals, countries, organizations, and keywords. It uses software to track and analyze international cutting-edge research (Fan *et al.,* 2022).

The primary objective of this bibliometric exploration is to identify prevailing research patterns and evaluate the level of Indonesia's scientific input. To ensure a more precise and guided review, the following research questions have been formulated. a) what is the general description of research on the topic of learning approach in primary education level?; b) what are the research trends for the topic of learning approach in primary education level?; c) who are the most influential researchers? What is the contribution of Indonesian authors to the topic of learning approach in primary education level?; d) which documents are the most influential in the context of learning approaches in primary education level?; e) Which source title has the most influence on the topic of learning approach in primary education level?; f) which affiliations are the most productive?; g) which countries are most involved in research on the topic of learning approach in primary education level? How does Indonesia contribute?

This research represents a systematic effort to map and evaluate the development of scientific literature related to learning approaches at the primary education level in Indonesia. Employing a bibliometric methodology, this study provides an objective and comprehensive perspective on trends, patterns, and gaps within the literature, while underlining the unique and significant contributions from

Indonesian researchers. Moreover, this study aids in identifying and formulating future research priorities focused on improving the quality of primary education in Indonesia, encompassing technological advancements, curriculum, and teaching methods. The outcomes of this research are anticipated to influence educational policy, teaching practices, and further research in Indonesia, as well as contribute globally to the field of primary education.

The study is structured into five main chapters. Chapter one introduced the research problem, the research questions, and the objectives of the study. Chapter two presented the methodology of the study, including the research design, the data collection procedures, and the data analysis techniques. Chapter three presented the findings of the study, including a detailed description of the data analysis and the results of the study. Chapter four summarized the main findings of the study and discusses the implications of the study for theory and practice. The chapter also provides suggestions for future research directions and concludes the study.

METHODS

Research design

This study followed the guidance of bibliometric study, which involved analyzing various bibliographic data sources to gain insights into the patterns of scholarly communication, research impact, and collaboration among researchers in a particular field or discipline (Donthu *et al.,* 2021; Echchakoui, 2020; Linnenluecke *et al.,* 2020). By using bibliometric methods, the study was able to identify the most influential authors, journals, and publications in the field and uncover potential areas for future research. The findings of the study provide valuable information for researchers, policymakers, and funding agencies to make informed decisions about resource allocation and research priorities in the field.

Procedure

An overview of the metadata collection procedure from the Scopus database is presented in Figure 1. The process involves four distinct stages: initial search, application of inclusion and exclusion criteria, data extraction, and data cleaning.

1. Initial search

The scholars opted to employ the Scopus database as a primary source, as it encompasses various scholarly publications, including journals and conference proceedings, that are highly regarded by scientific communities, owing to their relevance, consistency, and periodicity. The investigation was commenced by conducting an online search between the dates of 14-18 February 2023.

In order to pinpoint articles germane to the research theme, two keywords, namely "learning approaches" and "primary education", were assigned special attention. To ensure a comprehensive search, alternative keywords were integrated into the query process. Specifically, in addition to "learning approaches", the following pertinent keywords were selected: "learning model" and "learning strategies". Similarly, for the "primary education" terminologies, relevant keywords such as "primary school", "primary education", "elementary school", "elementary education", "basic school", and "basic education" were incorporated.

A primary database was obtained from Scopus using the following search query. TITLE((learn* OR instruct* OR teach*) AND (model OR strategy* OR approach*) AND ("primary school" OR "primary education" OR "elementary school" OR "elementary education" OR "basic school" OR "basic education")) AND (LIMIT-TO (SUBJAREA,"SOCI")).

In conclusion, a total of 549 documents, encompassing various publications such as journal articles, conference proceedings, books/ book chapters, editorial pieces, errata, and notes, were procured for the ultimate scrutiny. The final dataset encapsulated the ensuing fields for each document: article identification number, article title, source title, cited relationship, author details, affiliated institution, country, document hyperlink, and year of publication.

2. Inclusion and exclusion criteria

To achieve accurate search results, several search criteria were employed. The search field used in the Scopus database was limited to "Article

Title" to ensure greater precision. This approach proved more effective than searching across multiple fields, such as "Article title, Abstract, Keywords." Filters based on year range, language, source type, and document type were not applied during the search.

3. Data extraction

Following the application of the inclusion and exclusion criteria, a total of 549 records were acquired for data harmonization and analysis. The metadata were subsequently exported in three different file formats. The initial file, scopus_export_refined_values.csv, was obtained in CSV format via export filters counts. The remaining files, scopus.csv and Scopus.ris, were downloaded in CSV and RIS formats, respectively, to obtain all document-related information, except for references.

4. Data cleaning

To ensure the analysis's effectiveness and dependability, data filtering and preprocessing were conducted (Rulyansah *et al.,* 2022). The metadata for 549 documents underwent meticulous scrutiny and subsequent standardization of the terminologies used. This process involved the standardization of author names (author ID), affiliation and country, source title, author's keyword, indexed keywords, and cited references. The data harmonization procedure was manually executed using Open Refine software. Open Refine was equipped with a feature called "clustering," which is used to group similar data. This feature is particularly useful in identifying data that may be identical but written in different formats (Toms *et al.,* 2023).

Data Analysis

The data analysis in this bibliometric study was based on the research questions as previously described in the introduction section. Publish or Perish (PoP), Ms. Excel, and ChatGPT were utilized to analyze the data. PoP was used to extract data from the

Scopus metadata to enable the retrieval of citation data, author count, and document age. This data was further processed using Ms. Excel to obtain total publication data, number of cited papers, total citations, average citation per paper, average citation per cited paper, h-index, g-index, and m-index. ChatGPT was employed to facilitate datae analysis and interpretation. Nevertheless, the results of the ChatGPT analysis and interpretation underwent manual verification to ensure accuracy.

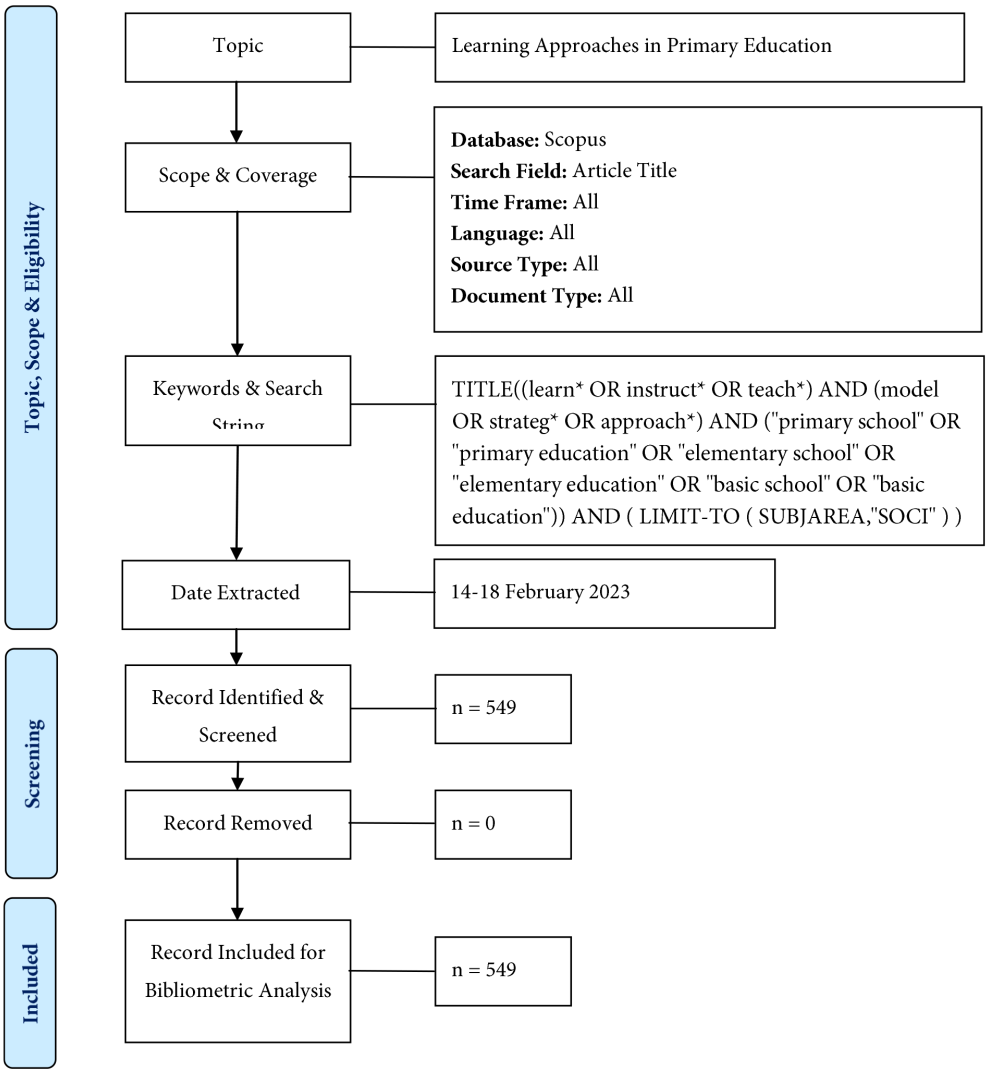


Figure 1. A schematic illustrating the search process flow

RESULTS AND DISCUSSION

In this section, denoted as "Results and Discussion," we explicate the findings of our study and expound on the implications and significance of our results. The presentation of our results and ensuing discussions are firmly grounded in the research questions as outlined in the Introduction section.

1. General overview of the research pertaining to learning approaches at the primary education level

   Table 1 provided a synopsis of a research group's performance or a particular field of research. Several parameters evaluated include the quantity of articles or publications published, the number of citations received by these articles, the average number of citations per article, and other measures of research performance, such as the h-index, g-index, and hI-index. Such data can provide valuable insights into gauging research impact and productivity, and serve as a benchmark for comparing research performance across different research groups or fields.

Table 1. Overview of the Research

Aspect	Value
Papers	549
Citations	4552
Years	56
Cites_Year	81.29
Cites_Paper	8.29
Cites_Author	2022.7
Papers_Author	274.69
Authors_Paper	2.74
h_index	33
g_index	51
hc_index	21
hI_index	11.11
hI_norm	20

The data presented in Table 1 indicates that the research group has been actively engaged in research for 56 years and has published a total of

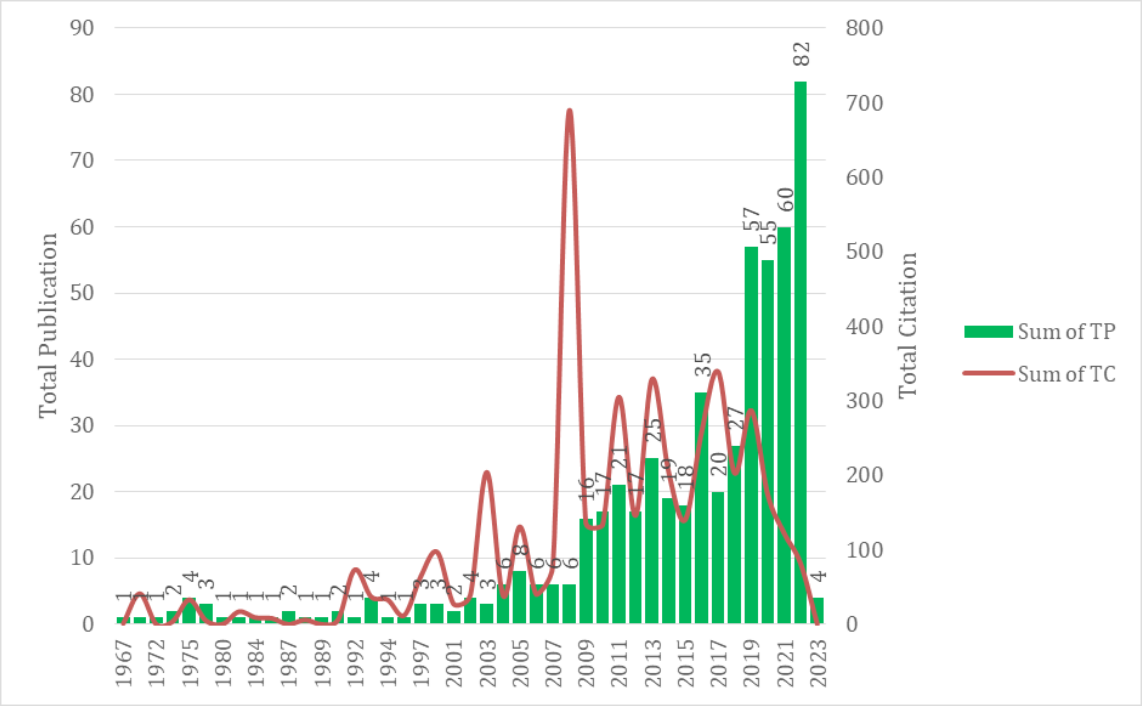
549 articles. The average number of citations per year (Cites_Year) for this research group is 81.29, while the average number of citations per article (Cites_Paper) is 8.29. Cites_Paper, which is a measure of a researcher's publication output quality and impact (Bi, 2022; Radev *et al.,* 2016), indicates that the research group's articles have been extensively cited by other researchers, suggesting that they have a considerable impact and influence in their respective field of research.

Moreover, it can also be observed that the average number of articles per researcher (Papers_Author) in the research group is 274.69, with an average number of researchers per article (Authors_Paper) of 2.74. These statistics indicate that the research group is sufficiently productive in terms of research activity and publication output. The productivity of researchers can be bolstered by means of collaboration, which can be assessed via the average number of papers per researcher (Van Nunen *et al.,* 2018).

Additional performance metrics, such as h-index, g-index, hc-index, hI-index, and hI-norm, presented in the table can also provide insights into the research group's impact and productivity. H-index, g-index, and hc-index measure the number of articles and their respective citations that achieve a certain threshold, while hI-index and hI-norm amalgamate other performance metrics with the impact factor of the journal (Alshdadi *et al.,* 2023). An increase in the value of these performance metrics corresponds to a heightened level of impact and productivity of the research group.

2. The research trends regarding the topic of learning approaches in primary education level

An overview of research trends is depicted in Graph 1, which provides information on the trend of the number of publications and their respective citations per year.



Graph 1. Total Publications and Citations by Year

The trend of research pertaining to learning approaches in primary education level is consistently increasing. The initial publication was recorded 56 years ago in 1967 with just one document published. A substantial rise was observed in 2009 with 16 published documents, and the number increased continually to 82 documents in 2022. However, the trend of citations does not correspond with the publication trend. The citation trend reached its zenith with 690 citations throughout 2008. The number of publications exhibits considerable variability from year to year, but on the whole, it demonstrates an increasing trend over time.

3. The scholarly impact of authors hailing from Indonesia on the subject of primary-level learning approaches

Table 2 presents various metrics pertaining to publication and impact, including total number of publications, number of cited publications, total citations, average citations per publication, and average citations per cited publication. Meanwhile, Table 3 provides valuable information on the number of authors involved in document preparation.

Table 2. Most Productive Authors

Author Name	TP	Affiliation	Country	NCP	TC	C/P	C/CP
Bai, B.	4	Chinese University of Hong Kong	Hong Kong	4	90	22.50	22.50
Shymansky, J.A.	4	University of Missouri-St. Louis	United States	3	32	8.00	10.67
Tsai, C.C.	4	National Taiwan Normal University	Taiwan	4	71	17.75	17.75
Annetta, L.A.	3	East Carolina University	United States	2	27	9.00	13.50
Good, R.G.	3	Louisiana State University	United States	2	9	3.00	4.50
Hu, G.	3	Hong Kong Polytechnic University	Hong Kong	3	124	41.33	41.33
Kokkotas, P.	3	National and Kapodistrian University of Athens	Greece	2	23	7.67	11.50
Minogue, J.	3	NC State University	United States	1	4	1.33	4.00
Prahani, B.K.	3	Universitas Negeri Surabaya	Indonesia	3	26	8.67	8.67
Uibu, K.	3	Tartu Ülikool	Estonia	2	15	5.00	7.50
Abdullah, A.S.	2	Tartu Ülikool	Estonia	1	11	5.50	11.00
Adank, R.	2	Universiti Utara Malaysia	Malaysia	1	10	5.00	10.00
Ahdhianto, E.	2	Universitas Negeri Malang	Indonesia	0	0	0.00	#DIV/0!
Alfin, J.	2	UIN Sunan Ampel Surabaya	Indonesia	1	15	7.50	15.00
Cumming-Potvin, W.	2	Murdoch University	Australia	2	82	41.00	41.00
De Backer, F.	2	Vrije Universiteit Brussel	Belgium	2	9	4.50	4.50
Fahrurrozi	2	Universitas Negeri Jakarta	Indonesia	2	4	2.00	2.00

Notes: TP=total number of publications; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication.

The top 17 authors are dominated by Indonesia and the United States, with each having 4 authors. All authors from Indonesia produced a total of 9 documents, 6 of which have been cited. These documents have contributed 45 citations, which means that nearly 10% of the total 552 citations have been attributed to the Indonesian authors, demonstrating a substantial contribution to the research topic. However, Roldan-Valadez *et al.* (2019) contend that productivity, as measured by the number of papers an author publishes, is an inadequate predictor of future scientific impact.

Table 3. Distribution of Author Count

Author Count	TP	Percentage
0	1	0.18%
1	122	22.22%
2	164	29.87%
3	120	21.86%
4	78	14.21%
5	34	6.19%
6	15	2.73%
7	6	1.09%
8	5	0.91%
9	1	0.18%
10	1	0.18%
11	1	0.18%
15	1	0.18%
Grand Total	**549**	**100.00%**

Note: TP=Total Publication

Based on the data presented in Table 3, it appears that one document was authored by an unaffiliated author, which may have resulted from errors in the metadata of author names. On the other hand, one document was authored by 15 individuals, while the majority of documents were written by two authors, and 122 single-authored documents ranked second. The decision to author a paper with a certain number of collaborators may be influenced by several factors, including the complexity of the topic being

addressed, the disciplinary fields involved, or the funding sources for the research. Papers with a large number of authors may benefit from wider and more diverse data collection and research methodologies.

In the case of the paper authored by 15 individuals, it may be necessary to conduct further analysis to determine whether each author made a significant contribution to the research, and whether the credit given to each author is proportional to their contribution. Additionally, it may be pertinent to examine whether the research requires interdisciplinary or international collaboration, which would necessitate multiple authors to represent the various fields or countries involved.

4. The most impactful document pertaining to the topic of primary-level learning approaches

Presented in Table 4 are documents that have garnered a substantial amount of citations in recent years. This table provides pertinent details, such as the authors' names, the titles of the documents, the total number of citations, and the average number of citations per year for each of the listed documents.

Table 4. highly cited-Documents

No.	Author(s)	Title	TC	C/Y
1	Dignath *et al.* (2008)	How can primary school students learn self-regulated learning strategies most effectively?. A meta-analysis on self-regulation training programmes	451	30.07
2	Tondeur *et al.* (2008)	A multidimensional approach to determinants of computer use in primary education: Teacher and school characteristics	157	10.47
3	Oga-Baldwin *et al.* (2017)	Motivating young language learners: A longitudinal model of self-determined motivation in elementary school foreign language classes	102	17
4	Lan & Oxford (2003)	Language learning strategy profiles of elementary school students in Taiwan	91	4.55

No.	Author(s)	Title	TC	C/Y
5	Coplan *et al.* (2011)	Is Silence Golden? Elementary School Teachers' Strategies and Beliefs Regarding Hypothetical Shy/Quiet and Exuberant/Talkative Children	83	6.92
6	Moely *et al.* (1992)	The Teacher's Role in Facilitating Memory and Study Strategy Development in the Elementary School Classroom	73	2.35
7	Settlage (2000)	Understanding the learning cycle: Influences on abilities to embrace the approach by preservice elementary school teachers	63	2.74
8	Zhang *et al.* (2008)	A cognitive perspective on Singaporean primary school pupils' use of reading strategies in learning to read in English	62	4.13
9	Yin *et al.* (2017)	Elementary School Leadership Strategies and Subject Matter: Reforming Mathematics and Literacy Instruction	61	3.05

Notes: TC=total citations; C/Y=average citations per year

The majority of highly cited documents were published over a decade before the publication of this paper. Only two documents were written in 2017. This suggests that, to achieve a substantial citation count and rank among the top ten most influential documents, it typically takes at least a decade for a paper to accumulate citations. However, it is essential to acknowledge that the timing of citation accumulation can vary depending on the topic under investigation.

5. The most impactful source title concerning the topic of primary-level learning approaches

Within Table 5, an overview of the research output in education is provided through a list of the most active journals in publishing articles on educational research. The presented variables in this table include Total Papers (TP), Number of Citing Papers (NCP), Total Citation (TC), Citation per Paper (C/P), Citation per Citing Paper (C/CP), h-index, g-index, and m-index.

Table 5. Most Active Source Titles

Source Title	TP	NCP	TC	C/P	C/CP	h	g	m
International Journal of Scientific and Technology Research	13	7	23	1.77	3.29	4	4	0.0645
Procedia - Social and Behavioral Sciences	12	8	40	3.33	5.00	4	6	0.0241
Universal Journal of Educational Research	10	7	57	5.70	8.14	3	7	0.0682
Education 3-13	10	8	51	5.10	6.38	3	7	0.0256
International Journal of Instruction	7	5	44	6.29	8.80	4	6	0.1379
Sustainability (Switzerland)	7	6	72	10.29	12.00	5	7	0.1923
British Journal of Educational Psychology	6	5	173	28.83	34.60	5	6	0.0340
Educational Studies	6	5	58	9.67	11.60	4	6	0.0513
International Journal of Research in Education and Science	5	3	13	2.60	4.33	2	3	0.0625
Kuram ve Uygulamada Egitim Bilimleri	5	5	67	13.40	13.40	5	5	0.0820
Asian EFL Journal	5	4	6	1.20	1.50	1	2	0.0345

Notes: TP=total number of publications; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication; h=h-index; and g=g-index.

Table 5 indicates that the most active journals in publishing educational research articles are the British Journal of Educational Psychology and Sustainability (Switzerland). The British Journal of Educational Psychology has the highest Total Citation (TC) of 173 and the highest Citation per Citing Paper (C/CP) of 34.60, signifying that it is an essential reference in educational psychology research. On the other hand, Sustainability (Switzerland) has the highest Citation per Paper (C/P) and Citation per Citing Paper (C/CP) of 10.29 and 12.00, respectively, indicating that articles published in this journal are frequently cited in educational and environmental research.

Additionally, other journals such as the International Journal of Scientific and Technology Research, Procedia - Social and Behavioral

Sciences, Universal Journal of Educational Research, Education 3-13, Educational Studies, International Journal of Research in Education and Science, and Kuram ve Uygulamada Egitim Bilimleri are also included in the list of most active journals in publishing educational research articles. This trend underscores the ongoing development of research in the field of education and emphasizes its significance as an essential topic to be studied.

Furthermore, Table 6 provides the Scopus status of several related journal titles. This table presents information on the journal title, publisher, Cite Score, SJR, SNIP, Scopus status, and Q category. Some journals have ceased publication, while others continue to be published. The Q category denotes the quality or class of a journal, with the highest Q value being 1 and the lowest Q value being 4.

Table 6. Scopus Status of Source Title

Source Title	Publisher	Cite Score	SJR	SNIP	Scopus Status*	Q
International Journal Of Scientific And Technology Research	International Journal of Scientific and Technology Research	0.2	0.123	0.421	discontinued	-
Procedia - Social And Behavioral Sciences	Conference Proceeding	-1	0.158	0.654	discontinued	-
Education 3-13	Taylor & Francis	1.7	0.368	0.87	continued	2
Universal Journal Of Educational Research	Horizon Research Publishing	0.2	0.122	0.574	discontinued	-
International Journal Of Instruction	Gate Association for Teaching and Education	3.4	0.5	1.394	continued	1
Sustainability (Switzerland)	Multidisciplinary Digital Publishing Institute (MDPI)	5	0.664	1.31	continued	1
British Journal Of Educational Psychology	Wiley-Blackwell	5.2	1.291	1.991	continued	1
Educational Studies	Taylor & Francis	2.9	0.53	1.085	continued	2

Source Title	Publisher	Cite Score	SJR	SNIP	Scopus Status*	Q
Asian Efl Journal	Asian EFL Journal Press	1	0.27	0.365	discontinued	-
International Journal Of Research In Education And Science	International Journal of Research in Education and Science	1.2	0.189	1.1	discontinued	-
Kuram Ve Uygulamada Egitim Bilimleri	EDAM-Education Consultancy Limited	1.6	0.244	0.493	discontinued	-

*data diambil pada 24 Februari 2023
Notes: SJR=Scimago Journal Rank; SNIP= Source-Normalized Impact per Paper; Q=Quartile

When viewed from the perspective of publishers, only those that are prominent, such as Taylor & Francis, Multidisciplinary Digital Publishing Institute (MDPI), and Wiley-Blackwell, have been able to secure indexing in Scopus. It is conceivable that the scope of the research topic may be limited if it is published in journals that are affiliated with high-class publishers.

6. The most productive affiliation

Table 7 showcases the institutional superiority of Indonesia, and includes additional metrics such as the total number of publications, number of cited publications, total citations, average citations per publication, and average citations per cited publication. The metrics presented are designed to assist readers in analyzing the global impact of institutions.

Table 7. Most productive institutions with minimum of five publications

Institution	TP	Country	NCP	TC	C/P	C/CP
Universitas Pendidikan Indonesia	8	Indonesia	4	15	1.88	3.75
Universitas Negeri Yogyakarta	7	Indonesia	2	23	3.29	11.50
Universitas Negeri Malang	7	Indonesia	3	6	0.86	2.00

Institution	TP	Country	NCP	TC	C/P	C/CP
Chinese University of Hong Kong	6	Hong Kong	6	157	26.17	26.17
Nanyang Technological University	6	Singapore	5	130	21.67	26.00
Universitas Sebelas Maret	6	Indonesia	2	14	2.33	7.00
Universitas Negeri Jakarta	6	Indonesia	3	14	2.33	4.67
Universidad de Murcia	5	Spain	4	19	3.80	4.75
University of Cambridge	5	United Kingdom	4	81	16.20	20.25
Universitas Negeri Surabaya	5	Indonesia	4	67	13.40	16.75

Notes: TP=total number of publications; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication

Table 7 illustrates that a few educational institutions have a substantial number of publications, including the Chinese University of Hong Kong and Nanyang Technological University, each with TP of 6 and TC of 157 and 130, respectively. Moreover, the high C/P and C/CP ratios for these institutions signify that their published works carry significant influence and importance in their respective research fields.

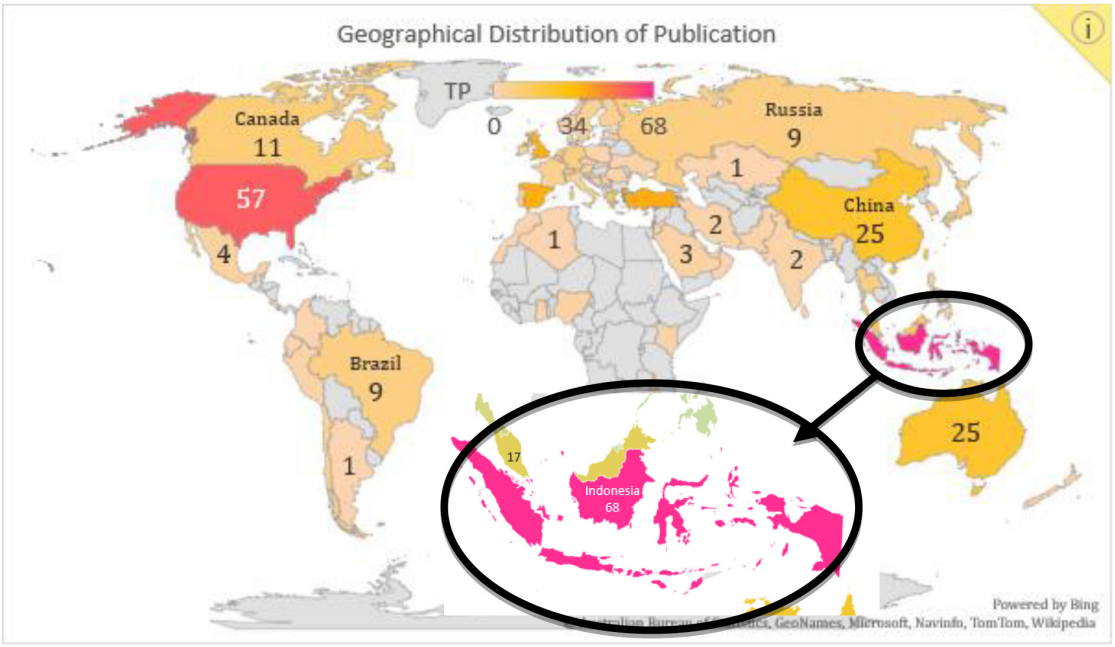
Table 7 reveals the presence of several Indonesian educational institutions, such as Universitas Pendidikan Indonesia, Universitas Negeri Yogyakarta, and Universitas Negeri Malang, with TP of 8, 7, and 7, respectively. Nevertheless, the C/P and C/CP ratios of these institutions are relatively lower than those of foreign educational institutions. It should be noted that the citation performance of Indonesian journals is influenced by several factors, such as peer review quality, international collaboration, journal age, and online availability.

The top 11 institutions feature six universities from Indonesia, namely Universitas Pendidikan Indonesia, Universitas Negeri Yogyakarta, Universitas Negeri Malang, Universitas Sebelas Maret, Universitas Negeri Jakarta, and Universitas Negeri Surabaya, indicating the prominence of the country in the field of learning approaches research. This observation

implies that Indonesian authors continue to actively engage with this topic, even though the research focus may have shifted in other countries.

7. The country most involved in research on learning approaches in primary education level

The distribution map of the number of publications among countries worldwide is presented in Figure 2. The large black circle represents an enlarged view of Indonesia.



In terms of research productivity on the topic of learning approaches in primary education, Indonesia has outperformed several other countries, including the United States, Turkey, Spain, United Kingdom, Australia, and China. Indonesian authors have produced a total of 68 research documents over the course of 56 years, and the trend suggests that this number is likely to increase in the future. Hence, it can be inferred that Indonesia is currently leading in terms of the number of research documents produced on learning approaches in primary education (Permanasari *et al.,* 2021).

CONCLUSION

The principal aim of this bibliometric investigation is to discern prevailing research patterns and assess the degree of Indonesia's scientific contribution to the study of learning approaches in primary education. Over more than half a century, this study dissected 549 scholarly articles, which have cumulatively garnered an impressive 4552 citations. It was observed that these articles reached the pinnacle of their influence in 2008, amassing a remarkable 690 citations in that year alone. Among the pantheon of authors who made substantial contributions to the field, 17 luminaries, predominantly from Indonesia and the United States, stood out. A significant portion of the most widely referenced works emanated from more than a decade ago, testifying to their enduring relevance. When it comes to periodicals championing the publication of educational research articles, the British Journal of Educational Psychology and Switzerland's Sustainability Journal hold the reins. Furthermore, it is noteworthy that Indonesian universities leave a hefty footprint in the field, representing over half of the top 11 institutions dedicated to research on learning approaches. This demonstrates Indonesia's preeminence, surpassing other globally recognized contenders such as the United States, Turkey, Spain, the UK, Australia, and China, hence underlining Indonesia's significant triumphs in this field. Nonetheless, this review has certain limitations, such as the use of only the Scopus database and the absence of keyword analysis. Future research is expected to incorporate multiple databases and research methods, such as systematic literature reviews and bibliometric analyses, and report on keyword analyses.

REFERENCES

Abdul Jabbar, A. I., & Felicia, P. (2015). Gameplay Engagement and Learning in Game-Based Learning: A Systematic Review. *Review of Educational Research*, *85*(4), 740–779. https://doi.org/10.3102/0034654315577210

Aiman, U., Hasyda, S., & Uslan. (2020). The influence of process oriented guided inquiry learning (POGIL) model assisted by realia media to improve scientific literacy and critical thinking skill of primary school students. *European Journal of Educational Research*, *9*(4), 1635–1647. https://doi.org/10.12973/EU-JER.9.4.1635

Almulla, M. A. (2020). The Effectiveness of the Project-Based Learning (PBL) Approach as a Way to Engage Students in Learning. *SAGE Open*, *10*(3), 2158244020938702. https://doi.org/10.1177/2158244020938702

Alshdadi, A. A., Usman, M., Alassafi, M. O., Afzal, M. T., & AlGhamdi, R. (2023). Formulation of rules for the scientific community using deep learning. *Scientometrics*, 1–28.

Bi, H. H. (2022). Four problems of the h-index for assessing the research productivity and impact of individual authors. *Scientometrics*. https://doi.org/10.1007/s11192-022-04323-8

Coplan, R. J., Hughes, K., Bosacki, S., & Rose-Krasnor, L. (2011). Is Silence Golden? Elementary School Teachers' Strategies and Beliefs Regarding Hypothetical Shy/Quiet and Exuberant/Talkative Children. *Journal of Educational Psychology*, *103*(4), 939–951. https://doi.org/10.1037/a0024551

Dignath, C., Buettner, G., & Langfeldt, H.-P. (2008). How can primary school students learn self-regulated learning strategies most effectively?. A meta-analysis on self-regulation training programmes. *Educational Research Review*, *3*(2), 101–129. https://doi.org/10.1016/j.edurev.2008.02.003

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, *133*, 285–296.

Echchakoui, S. (2020). Why and how to merge Scopus and Web of Science during bibliometric analysis: the case of sales force literature from 1912 to 2019. *Journal of Marketing Analytics*, *8*, 165–184.

Ellegaard, O., & Wallin, J. A. (2015). The bibliometric analysis of scholarly production: How great is the impact? *Scientometrics*, *105*(3), 1809–1831. https://doi.org/10.1007/s11192-015-1645-z

Fan, S., Jiang, J., Li, F., Zeng, G., Gu, Y., & Guo, W. (2022). A Bibliometric Analysis of the Literature on Postgraduate Teaching. *Sustainability (Switzerland)*, *14*(24). https://doi.org/10.3390/su142417047

Herodotou, C., Sharples, M., Gaved, M., Kukulska-Hulme, A., Rienties, B., Scanlon, E., & Whitelock, D. (2019). Innovative Pedagogies of the Future: An Evidence-Based Selection. *Frontiers in Education*, *4*(October), 1–14. https://doi.org/10.3389/feduc.2019.00113

Invernizzi, P. L., Crotti, M., Bosio, A., Cavaggioni, L., Alberti, G., & Scurati, R. (2019). Multi-teaching styles approach and active reflection: Effectiveness in improving fitness level, motor competence, enjoyment, amount of physical activity, and effects on the perception of physical education lessons in primary school children. *Sustainability (Switzerland)*, *11*(2). https://doi.org/10.3390/su11020405

Johnson, K. A., Sheri, S., David, S., & Roger, J. (2005). Pedagogies of engagement: Classroom-based practices. *Journal of Engineering Education*, *January*, 1–15.

Justo, R., Ramos, R., Llandelar, S., Sanares, R., & Rodelas, N. (2022). Game-based learning for student engagement: A paradigm shift in blended learning education. In *AIP Conference Proceedings* (Vol. 2502). https://doi.org/10.1063/5.0109625

Krouska, A., Troussas, C., & Sgouropoulou, C. (2022). Mobile game-based learning as a solution in COVID-19 era: Modeling the pedagogical affordance and student interactions. *Education and Information Technologies*, *27*(1), 229–241. https://doi.org/10.1007/s10639-021-10672-3

Lan, R., & Oxford, R. L. (2003). Language learning strategy profiles of elementary school students in Taiwan. *IRAL - International Review of Applied Linguistics in Language Teaching*, *41*(4), 339–379. https://doi.org/10.1515/iral.2003.016

Linnenluecke, M. K., Marrone, M., & Singh, A. K. (2019). Conducting systematic literature reviews and bibliometric analyses. *Australian Journal of Management*, *45*(2), 175–194. https://doi.org/10.1177/0312896219877678

Linnenluecke, M. K., Marrone, M., & Singh, A. K. (2020). Conducting systematic literature reviews and bibliometric analyses. *Australian Journal of Management*, *45*(2), 175–194.

Moely, B. E., Hart, S. S., Leal, L., Santulli, K. A., Rao, N., Johnson, T., & Hamilton, L. B. (1992). The Teacher's Role in Facilitating Memory and Study Strategy

Development in the Elementary School Classroom. *Child Development*, *63*(3), 653–672. https://doi.org/10.1111/j.1467-8624.1992.tb01653.x

Nurlaily, V. A., Soegiyanto, H., & Usodo, B. (2019). Elementary school teacher's obstacles in the implementation of problem-based learning model in mathematics learning. *Journal on Mathematics Education*, *10*(2), 229–238. https://doi.org/10.22342/jme.10.2.5386.229-238

Oga-Baldwin, W. L. Q., Nakata, Y., Parker, P., & Ryan, R. M. (2017). Motivating young language learners: A longitudinal model of self-determined motivation in elementary school foreign language classes. *Contemporary Educational Psychology*, *49*, 140–150. https://doi.org/10.1016/j.cedpsych.2017.01.010

Permanasari, A., Rubini, B., & Nugroho, O. F. (2021). STEM education in Indonesia: Science teachers' and students' perspectives. *Journal of Innovation in Educational and Cultural Research*, *2*(1), 7–16.

Radev, D. R., Joseph, M. T., Gibson, B., & Muthukrishnan, P. (2016). A bibliometric and network analysis of the field of computational linguistics. *Journal of the Association for Information Science and Technology*, *67*(3), 683–706.

Rojas-Sánchez, M. A., Palos-Sánchez, P. R., & Folgado-Fernández, J. A. (2022). Systematic literature review and bibliometric analysis on virtual reality and education. In *Education and Information Technologies*. Springer US. https://doi.org/10.1007/s10639-022-11167-5

Roldan-Valadez, E., Salazar-Ruiz, S. Y., Ibarra-Contreras, R., & Rios, C. (2019). Current concepts on bibliometrics: a brief review about impact factor, Eigenfactor score, CiteScore, SCImago Journal Rank, Source-Normalised Impact per Paper, H-index, and alternative metrics. *Irish Journal of Medical Science (1971-)*, *188*, 939–951.

Rulyansah, A., Pratiwi, E. Y. R., Sriwijayanti, R. P., & Anjarwati, A. (2022). The Use of Games for Learning in Primary Schools: A Bibliometrics Analysis of The Scopus Database. *Jurnal Basicedu*, *6*(5), 8481–8490.

Settlage, J. (2000). Understanding the learning cycle: Influences on abilities to embrace the approach by preservice elementary school teachers. *Science Education*, *84*(1), 43–50. https://doi.org/10.1002/(SICI)1098-237X(200001)84:1<43::AID-SCE4>3.0.CO;2-F

Siwawetkul, W., & Koraneekij, P. (2020). Effect of 5e instructional model on mobile technology to enhance reasoning ability of lower primary school

students. *Kasetsart Journal of Social Sciences*, *41*(1), 40–45. https://doi.org/10.1016/j.kjss.2018.02.005

Szomszor, M., Adams, J., Fry, R., Gebert, C., Pendlebury, D. A., Potter, R. W. K., & Rogers, G. (2021). Interpreting Bibliometric Data. *Frontiers in Research Metrics and Analytics*, *5*(February), 1–20. https://doi.org/10.3389/frma.2020.628703

Toms, J. M., Ghazaani, S. J., Pournouri, S., & Ehiorobo, E. (2023). Profiling Suspected Chinese Cyber Attacks by Classification Techniques. *Cybersecurity in the Age of Smart Societies: Proceedings of the 14th International Conference on Global Security, Safety and Sustainability, London, September 2022*, 281–313.

Tondeur, J., Valcke, M., & Van Braak, J. (2008). A multidimensional approach to determinants of computer use in primary education: Teacher and school characteristics. *Journal of Computer Assisted Learning*, *24*(6), 494–506. https://doi.org/10.1111/j.1365-2729.2008.00285.x

Van Nunen, K., Li, J., Reniers, G., & Ponnet, K. (2018). Bibliometric analysis of safety culture research. *Safety Science*, *108*, 248–258.

Wahono, B., Lin, P.-L., & Chang, C.-Y. (2020). Evidence of STEM enactment effectiveness in Asian student learning outcomes. *International Journal of STEM Education*, *7*(1), 36. https://doi.org/10.1186/s40594-020-00236-1

Yin, H., Huang, S., & Lee, J. C. K. (2017). Choose your strategy wisely: Examining the relationships between emotional labor in teaching and teacher efficacy in Hong Kong primary schools. *Teaching and Teacher Education*, *66*, 127–136. https://doi.org/10.1016/j.tate.2017.04.006

Zhang, L. J., Gu, P. Y., & Hu, G. (2008). A cognitive perspective on Singaporean primary school pupils' use of reading strategies in learning to read in English. *British Journal of Educational Psychology*, *78*(2), 245–271. https://doi.org/10.1348/000709907X218179