Available online at http://www.bedujournal.com/

BASE FOR ELECTRONIC EDUCATIONAL SCIENCES

ISSN: 2718-0107

Base for Electronic Educational Sciences, 5(1), 31-63; 2024

The Concept of Literacy in Primary Education: A Bibliometric Study[c]

Ahat Tezcan[a] Sevim Güven[b]

[a] *Corresponding Author. Lecturer. Harran University, Siverek Vocational School, Şanlıurfa-Türkiye, https://orcid.org/0000-0001-8072-4495, E-mail: ahattezcan@harran.edu.tr*

[b] *Assoc. Prof. Dr. Tokat Gaziosmanpaşa University, Faculty of Education, Tokat-Türkiye, https://orcid.org/0000-0002- 6341-3609, E-mail: sevim.guven@gop.edu.tr*

[c] *This study is based on the first author's master's thesis completed at Tokat Gaziosmanpaşa University, Institute of Educational Sciences.*

APA Citation:
Tezcan, A. & Güven, S. (2024). The Concept of Literacy in Primary Education: A Bibliometric Study. *Base for Electronic Educational Sciences, 5*(1), 31-63.
Submission Date: 27/01/2024
Acceptance Date: 21/03/2024

Abstract

In this research, it is aimed to determine and evaluate the trends of the articles published in the Web of Science on the concept of literacy in primary education. The research data is based on the Web of Science database, with similar concepts as primary education, literacy, primary school, elementary education, 1st-2nd-3rd-4th-5th grade concepts. Descriptive and bibliometric analyzes were used together to obtain the data of the study. In the first stage, 4783 articles were reached, and in the second stage, 459 articles were reached. These data were processed with the Vosviewer program and descriptive and bibliometric content tables and network maps were obtained. According to the findings of the research, the most studies were conducted in the field of primary education and literacy in 2020, the majority of the studies were published in the education/education categories in the Web of Science database in the field of primary education and literacy, the most frequently published languages were English and then Spanish. findings have been reached. As a result, this research; it has created a general framework for many components that stand out in the field of literacy in primary education, including publication, author, publication language, journal, country, number of citations, collaborations, current research topics and future research trends.

Keywords: Literacy, primary education, web of science, bibliometric analysis

Introduction

Individuals are now exposed to a lot of information due to changing living conditions. Individuals need to be literate in the processes of obtaining, evaluating and using information in their daily lives (Kırkkılıç and Akyol, 2007, p.16). When the national and international literature is reviewed, literacy is defined as "literacy". This concept means perceiving the events in an individual's life and attributing meaning to them by using literacy skills (Nasırcı 2020, p. 99). According to another definition, it is defined as an intellectual process that includes perception skills (Coşkun, Cumaoğlu and Seçkin 2013, p. 1260). According to the definition on the official website of UNESCO (2022), the concept of literacy is "the ability to identify, understand, interpret, create, communicate and calculate using printed and written materials associated with changing contexts." Frankel, Becker, Rowe, and Pearson (2016, p. 7) explain the concept of literacy as "We define literacy as the process of using reading, writing, and oral language to extract, construct, integrate, and critique meaning through interaction and engagement with multimodal texts in the context of socially situated practices". Güneş (1994, p. 506) lists literacy levels as "illiteracy, semi-literacy, new literacy, latent illiteracy (decline in literacy status), functional literacy, and multifunctional literacy" from the lowest to the highest level. The act of reading and writing is based on decoding, while the concept of literacy is based on interpretation. While the act of literacy expresses a category, literacy indicates a degree. While the act of literacy refers to letters/words/sentences in the printed environment with various symbols and symbols, in literacy, anything/everything in the world can be perceived and interpreted -according to the level of the individual (Kurudayıoğlu & Tüzel, 2010).

The most important fields of activity where literacy studies are compiled and published are undoubtedly scientific journals. Analyzing the articles in the relevant literature in order to see the trend in the field of literacy can be guiding and facilitating for those who will conduct research on the subject. One of the related literature analysis studies is undoubtedly bibliometric analysis. In this context, it is seen that the research in the field of educational sciences, which are among the disciplines whose bibliometric analyses are carried out, is concentrated on science education, Turkish education, four basic language skills, media literacy, school bullying, STEM education, nature and environmental education, educational games, bilingualism and multilingualism, social studies education, measurement and evaluation, lifelong learning, geometry education, quality, scientific literacy, technology, teaching approaches, values education, sports education model, and foreign language teaching.

Bibliometric Analysis Studies on Turkish Education

In the literature, articles published in the Web of Science (WoS) database on the concept of Turkish language education (Şeref & Karagöz, 2019), research in the field of reading (Karagöz & Şeref, 2019) and writing skills (Karagöz & Şeref, 2020) were examined using bibliometric techniques and collaboration analysis. Aydeniz and Haydaroğlu (2021), who examined the postgraduate theses in the field of four basic language skills with bibliometric techniques, examined the postgraduate theses between 2015-2019 in terms of various variables according to language skills areas, supervisors, universities, and the relationship between discussion and conclusion sections. The research data were obtained from YÖK national

thesis centre and examined by bibliometric techniques and document analysis.

Soyuçok (2022) obtained the theses prepared within the scope of mother tongue education from the national thesis centre and subjected the data to bibliometric analysis according to years, types, universities, subjects and methods with the thesis examination form prepared by the researcher. Atasoy (2022), on the other hand, used Web of Science (WoS) and Scopus databases about writing teaching research and analysed the articles with bibliometric analysis in terms of variables such as years, countries, number of authors, and number of citations. Avcı and Kurudayıoğlu (2022) aimed to determine the current status of bilingualism studies by examining the data of 223 studies in the Web of Science (WoS) database in terms of variables such as countries, number of authors, number of citations by bibliometric analysis. In a similar study, İnce (2022) analysed 569 articles about bilingual and multilingual Turkish children by searching the international literature and Web of Science (WoS) database with the keywords 'bilingual', 'bilingualism', 'Turkish', 'multilingualism', 'Turkey' in terms of variables such as countries, number of authors, number of citations, and journals.

Bibliometric Analysis Studies on Social Studies Education

In the field of social studies education, Sönmez (2020) analyzed the studies published in the Web of Science (WoS) database and reached 228 studies. He found that 154 of these studies were related to social studies education. The data of these studies were subjected to bibliometric analysis according to variables such as years, countries, number of authors, and number of citations. Yeşiltaş and Akcan (2022) conducted a bibliometric analysis of research on project-based learning in social studies education and searched the Web of Science (WoS) database using the keywords "social studies" and "project-based". They examined 18 studies in the category of educational research with bibliometric analysis. Seyran and Gürhan (2021) examined 668 studies on "school bullying" in the field of social studies from the field of educational sciences in the Web of Science (WoS) database by bibliometric analysis according to variables such as years, countries, number of authors, number of citations. Yeşiltaş and Yılmazer (2021) reached 919 studies on media literacy in education by using the keyword "Media Literacy" in the Web of Science (WoS) database. These data results were subjected to descriptive analysis according to variables such as years, countries, number of authors, and number of citations.

Bibliometric Analysis Studies on Science Education

In order to create a general framework and contribute to the field by scanning the Web of Science (WoS) database of scientific studies in the field of science curricula, Demir and Çelik (2020) conducted a bibliometric analysis using the key phrase "Science Curriculum". They examined these data in terms of publication types, publication languages, publication numbers, citation analyses, and citation networks. Özkaya (2019) conducted a search in the field of STEM education using the Web of Science (WoS) database with the keyword group "stem education" and analyzed the data of 2313 studies in terms of publication types, publication languages, publication numbers, citation analyses, and citation networks. Yurdakul and Bozdoğan (2022) searched the studies in the Web of Science (WoS) database with the key phrase "science education"

and reached 1659 studies. These data were analyzed by descriptive analysis in terms of variables such as active publication types, active publication languages, number of publications, citation analyses, citation networks, active countries, active researchers. Ok (2022) analyzed the research on nature and environmental education in the Web of Science (WoS) database with the key groups "nature education" and "environmental education" and accessed 1312 publications. Bibliometric analysis of the accessed publications was carried out with the variables of journals with the most publications, distribution by years, institutions and countries, and authors with the most publications.

Bibliometric Analysis Studies for Other Fields

When we look at the researches conducted in other fields, we can see the studies published in the Journal of Mother Tongue Education (Karagöz & İkoç Aydın, 2019) and the keywords of the articles published in the same journal (Şeker, 2020), postgraduate theses on critical thinking skills (Batur & Özcan, 2020), school psychological counselling (Özteke Kozan, 2020), biotechnology education (Gürkan & Kahraman, 2021), information literacy (Akcan & Ablak, 2022), (Köşker, 2020), on religious education studies in Turkey (Aybey, 2018), on social media literacy (Yeşiltaş & Şeker, 2021), on computer literacy studies in education (Yeşiltaş & Evci, 2021), on academic studies on research- inquiry-based teaching (Saka & İnaltekin, 2021), on scientific studies on educational games (Dölek & Koç, 2022), on lifelong learning (Erdoğan, 2020).

Domestic studies can be seen as a study to identify or make sense of literacy types for all levels. However, it is a fact that there is a need for literacy studies on primary education level. Domestic studies are generally seen as whether a certain type of literacy is present in books, programs or students or evaluated according to teachers' opinions (Ateş & Aşçı, 2021; Sabır, 2022). In order to reveal the general situation in the field of literacy in primary education and to reveal the trends in this field, it is important to analyze the databases where studies are compiled or indexed.

There is a need for studies examining qualified articles conducted in the world and in our country in primary education levels, which are seen as the most important level in gaining literacy skills. For this reason, it is predicted that bibliometric analysis of the researches on the concept of literacy in primary education based on the Web of Science database will contribute to the field.

The main problem of the research is 'What kind of a trend do the studies on the concept of literacy in primary education levels show in the Web of Science database? The aim of this research is to determine and evaluate the trends of the articles scanned in Web of Science related to the concept of literacy in primary education. In line with this purpose, answers to the following sub-problems were sought.

1. What are the types of literacy in the articles searched with the keywords primary education' and 'literacy' in the Web of Science (WoS) database?
2. What are the Web of Science (WoS) categories of the publications searched with the keywords primary education' and 'literacy'?
3. What are the publication years and languages of the articles in the 'Education/Educational Research' category related to the field of primary education and literacy?

4. What is the keyword network of the articles in the category of 'Education/Educational Research' in the field of primary education and literacy?
5. What is the network of the most cited articles in the category of 'Education/Educational Research' in the field of primary education and literacy and what is the co-citation network of these articles?
6. Which researchers, journals, countries and institutions are active in the articles in the category of 'Education/Educational Research' in the field of primary education and literacy?

Method

Research Model

The research, which aimed to examine the studies on the concept of literacy in primary education in the Web of Science database, was planned on a descriptive research design. Therefore, descriptive and bibliometric analyses were used in data analysis. VOSviewer software will be preferred for bibliometric analysis. In the descriptive analysis part, frequencies were created based on the data obtained from the Web of Science database. Descriptive analysis allows the data obtained to be rearranged and handled in different dimensions (Yıldırım & Şimşek, 2018).

Research Procedure

Web of Science (WoS) is the world's leading scientific citation search platform and provides researchers with a set that includes many data in different scientific disciplines (Li, Rollins, & Yan, 2018). An online search was conducted from the Web of Science database covering the period between 1975 and November 2022. In this search, the terms 'literacy' and 'primary education', 'literacy' and 'primary school', 'literacy' and 'elementary school', 'literacy' and 'elementary students' were used. Then, in order for the data obtained to serve the purpose of the research, the different concepts and grade equivalents of the concept of primary education in English were also used and the terms 'literacy' and 'grade 1', 'literacy' and 'grade 2', 'literacy' and 'grade 2', 'literacy' and 'grade 3' were used, 'literacy' and 'grade 4', and 'literacy' and 'primary students', 'literacy' and 'first grade', 'literacy' and 'second grade', 'literacy' and 'third grade', 'literacy' and 'fourth grade', 'literacy' and 'fifth grade'. The data obtained from the Web of Science database search were limited with the 'articles' filter in the 'Education/Educational Research' category of WoS categories. The indexes were labelled as SCI- Expended, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH and ESCI.

In order not to reach the same results with the search expressions, the previously searched expressions were excluded from the search by filtering. The data obtained were downloaded in both excel and txt file formats. WoS categories and article filters were checked again to determine whether there were any errors in the Excel format data. The flow chart for scanning and identifying the research documents is given in Figure 1.

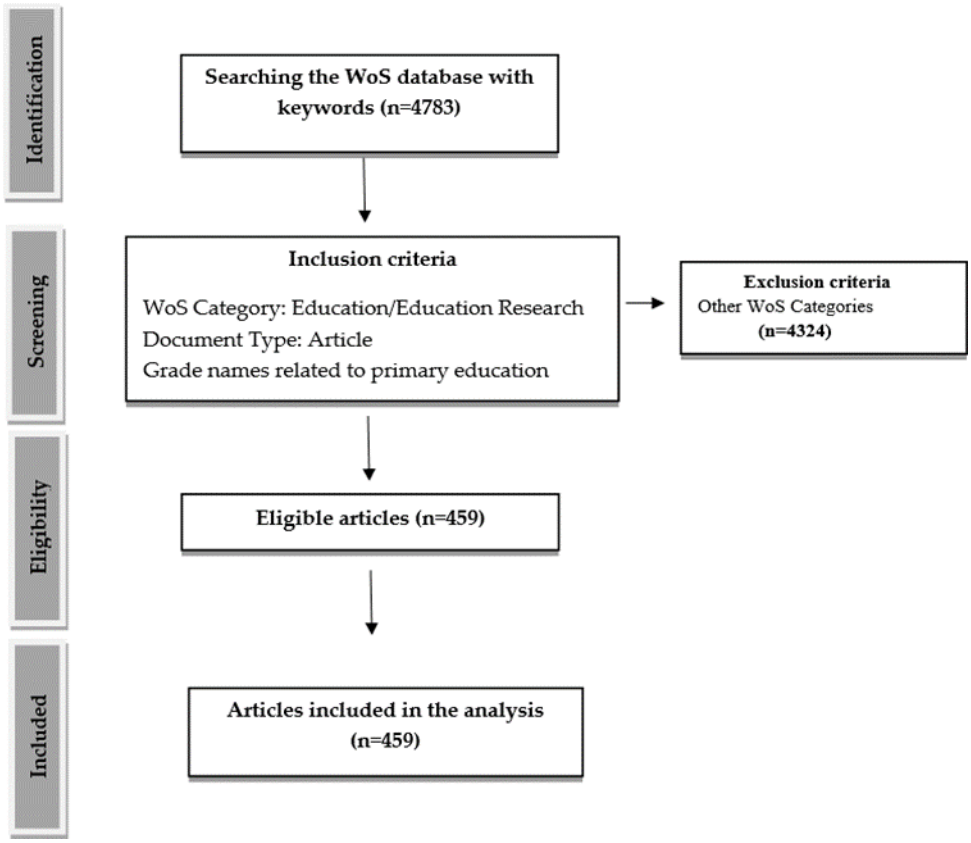


Figure 1. Flow Chart for Screening and Identification of Research Documents

In the WoS database, a total of 4783 studies were reached by using the terms 'literacy' and 'primary education' (839), 'literacy' and 'primary school' (1966), 'literacy' and 'elementary school' (1639), 'literacy' and 'elementary students' (339). Then, in order to ensure that these data could serve the purpose of the study, different concepts and grade equivalents of the concept of elementary education in English were also used and the terms 'literacy' and 'grade 1', 'literacy' and 'grade 2', 'literacy' and 'grade 2', 'literacy' and 'grade 3' were used, 'literacy' and 'grade 4', and 'literacy' and 'primary students', 'literacy' and 'first grade', 'literacy' and 'second grade', 'literacy' and 'third grade', 'literacy' and 'fourth grade', 'literacy' and 'fifth grade'. As a result of this filtering, 459 articles were found. The articles were found in the studies in the category of 'Education/Educational Research', one of the categories in the WoS database. In line with the aim of the research, a more in-depth search was made based on the concept equivalents of the concept of primary education in English, which have different meanings and are also found at different grade levels. As a result of this search, the number of 4783 studies reached was reduced to 459 articles with WoS categories and article filters.

Analyzing the Data

Bibliometrics comes from the words 'biblio' and 'metric' (Sengupta, 1992). In bibliometric studies, the general structure and statistical analysis of the field being researched can be made. Bibliometric studies, which are carried out in two categories, are descriptive in nature and provide the number of

publications, countries, years and authors in a certain year interval. The other is evaluative in nature, which is carried out to reveal how publications affect other publications and researchers in the same field by modelling the citation status of publications (McBurney & Novak, 2002). In bibliometric research, the general view of bibliometric elements (author, journal, concept, citation, institution, country, subject) with 'performance analysis' and the relationship networks (collaboration network, conceptual network and citation network) between bibliometric elements in different aspects with 'scientific field mapping' are revealed (Block & Fisch, 2020). Accordingly, bibliometric analysis is used to classify scientific production and measure its quality and impact, but it is also a useful tool to view and analyze the intellectual, conceptual and social structures, evolution and dynamic aspects of any research.

The VOSviewer software, which is compatible with Web of Science, was preferred for data analysis. This software provides the opportunity to establish relationships between the data and to reveal these relationships. Thanks to the zoom feature of the Java-based VOSviewer (Version 1.6.18/Published on 24 July 2022), the ability to save data in different formats and different formats, it is very easy to see the relationships within the maps created. The VOSviewer software can create various maps by revealing the association between authors, publications or journals based on common citation networks (VOSviewer, 2022).

The data obtained as a result of the searches in the Web of Science database were uploaded as files from the bibliometric database section in the VOSviewer software. According to the sub-problems of the research, Co-authorship, Co-occurrence, Citation, Bibliographic coupling, Co-citation analysis types were analyzed in the VOSviewer software in line with the purpose of the research. In addition, the data processed just before the emergence of the network map for descriptive analyses were saved separately in txt and excel format. Frequencies were extracted from these processed data in line with the sub-problems.

Research and Publication Ethics

In this study, all rules specified in the "Directive on Scientific Research and Publication Ethics of Higher Education Institutions" were followed. None of the actions specified under the second section of the Directive, "Actions Contrary to Scientific Research and Publication Ethics", have been carried out.

Ethics Committee Permission

Since this research was conducted on publications open to access in the literature, ethics committee permission was not obtained. The authors declared that all the rules specified in the "Directive on Scientific Research and Publication Ethics of Higher Education Institutions" were followed in this study, none of the actions specified under the title of "Actions Contrary to Scientific Research and Publication Ethics" were carried out, and since the data used were obtained from open access sources and existing researches, they were among the "studies that do not require ethics committee permission" specified in the relevant directive.

Findings

1. *What are the types of literacy in the articles searched with the keywords Primary Education' and 'Literacy' in the Web of Science (WoS) Database? Findings Related to the Sub-Problem*

The first sub-problem of the study, what are the types of literacy in the articles searched with the keywords primary education' and 'literacy' in the Web of Science (WoS) database? When the articles obtained in line with the sub-problem were analyzed, 48 different types of literacy obtained are presented in Table 1.

Table 1. Types of Literacy in the Articles

Literacy Type	f	Literacy Type	f	Literacy Type	f	Literacy Type	f
Literacy	169	Disciplinary Literacy	7	Natural Literacy	5	Linguistics Literacy	1
Digital Literacy	43	Information Literacy	7	Pre-School Literacy	5	Mental Health Literacy	1
Scientific Literacy	25	Multiple Literacy	7	Technological Literacy	3	Musical Literacy	1
ICT Literacy	19	Academic Literacy	6	Assessment Literacy	1	National Literacy	1
Media Literacy	19	Home Literacy Environment	6	Audiovisual Literacy	1	Ocean Literacy	1
Early Literacy	17	Statistical Literacy	6	Bilingual Literacy	1	Parental Literacy	1
Information Literacy	13	Adolescent Literacy	5	Biotechnological Literacy	1	Physical Literacy	1
Visual Literacy	13	Digital and Media Literacy	5	Cartographic Literacy	1	Posthuman Literacy	1
Critical Literacy	11	Ecological Literacy	5	Computer Literacy	1	Religion Literacy	1
Emergent Literacy	11	Family Literacy	5	Critical Media Literacy	1	Vernacular Literacy	1
Environmental Literacy	8	Health Literacy	5	Financial Literacy	1	Web-based literacy	1
Emotional Literacy	8	Mathematical Literacy	5	Integrated Literacy	1	Food and Nutrition Literacy	1

When Table 1 is analyzed, it is seen that the concept of 'literacy' is mentioned in 169 articles among the literacy types related to primary education and literacy concepts in the WoS database. The concept of 'literacy' here has the most basic meaning of 'knowing how to read and write'. The second most researched literacy type (f=43) in the analyzed articles is the concept of 'digital literacy'. The concept of 'scientific literacy' is the third most researched type of literacy (f=25) in the analyzed articles. Information and communication technologies literacy and media literacy were included in the table with the same frequency (f=19).

The word cloud of literacy types (f=48) found in the Web of Science database with the concepts of primary education and literacy is presented in Figure 2 in order to reveal the density of literacy types.

Figure 2. The Word Cloud Related to Literacy Types

When Figure 2 is examined, it is seen that 48 different literacy types obtained from the articles as a result of the search in the WoS database are included in larger font sizes according to the frequency density. In the word cloud visual, it is seen that the literacy types in small fonts are mentioned less than the concepts in large fonts.

2. *What are the Web of Science (WoS) Categories of the Publications Scanned with the Keyword Primary Education and Literacy? Findings Related to the Sub-Problem*

The second sub-problem of the study, what are the Web of Science (WoS) categories of the publications scanned with the keywords primary education' and 'literacy'? The first 10 categories from the WoS categories obtained in the search for the sub-problem are presented in Table 2.

Table 2. Categories Reached as a Result of the Scanning

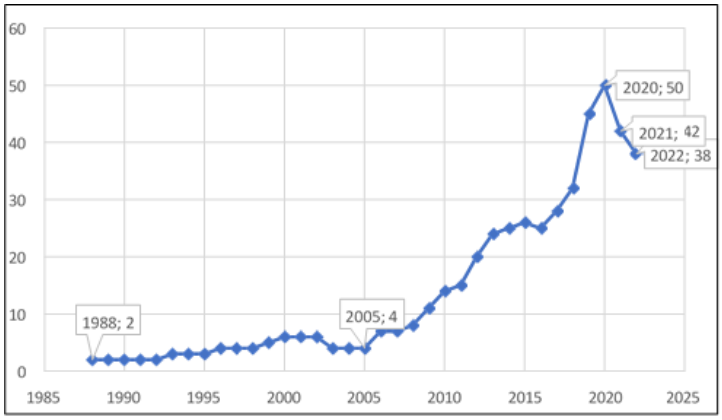
No	WoS Categories	f
1	Education Educational Research	459
2	Psychology Educational	79
3	Psychology Developmental	56
4	Language Linguistics	45
5	Social Sciences Interdisciplinary	34
6	Education Scientific Disciplines	30
7	Psychology Multidisciplinary	28
8	Multidisciplinary Sciences	27
9	Computer Science Interdisciplinary Applications	22
10	Public Environmental Occupational Health	21

When Table 2 is examined, it is seen that the articles accessed in the Web of Science (WoS) database with the concepts of primary education and literacy are

mostly (f=459) in the category of 'Education/Educational Research'. This table also includes three categories from psychology, one category from linguistics and two categories from social sciences. There is one category from Educational Sciences, Computer Science and Society/Environment.

3. *What are the Years of Publication and Languages of the Articles in the 'Education/Educational Research' Category Related to Primary Education and Literacy? Findings Related to the Sub-Problem*

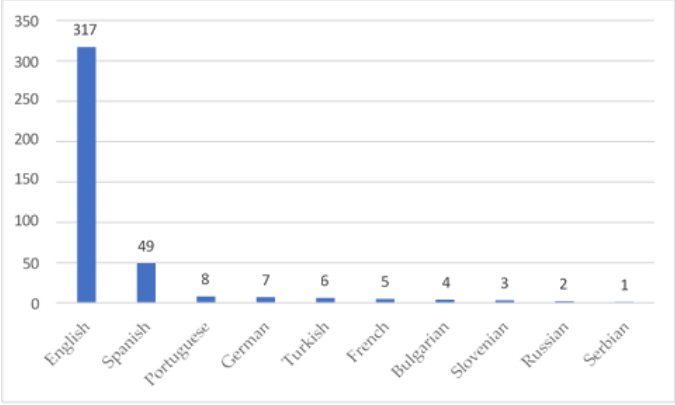
The numerical distribution of the articles analyzed in line with the third sub-problem of the study, what are the years of the articles in the category of education/educational research on 'primary education' and 'literacy'? is presented in Graph 1.



Graph 1. Numerical Distribution of Articles by Year

When Graph 1 is analyzed regarding the data accessed through the primary education field, literacy concept and article filters in the WoS database, it is seen that the first article was published in 1988. Until 2005, there is a linear -horizontal axis- increase. From 2005 to 2020, a steadily increasing trend is observed. This trend reached its peak in 2020. It can be said that this increase was observed with the pandemic that started in 2020. After 2020, relevant researches relatively decreased in 2021- 2022.

The numerical data obtained from the articles analyzed in line with the third sub-problem of the study, what are the years of the articles in the category of education/educational research on 'primary education' and 'literacy'? are presented in Graph 2.



Graphic 2. Distribution Chart of Active Publication Languages in Articles

When Graph 2 is examined, it is seen that English (f=317) and Spanish (f=49) are the most common languages among the articles analyzed. It can be said that the reason why English language is more than other languages is the widespread use of English in the scientific world and that it is a language that is mostly preferred in the WoS database. The number of articles published in Turkish is seen in the graph as f=6.

4. *What is the Keyword Network of the Articles in the 'Education/Educational Research' Category Related to Primary Education and Literacy? Findings Related to the Sub-Problem*

In line with the fourth sub-problem of the study, how is the keyword network of the articles published in the category of education/educational research related to the field of 'primary education and 'literacy', the first 10 keywords among the 85 keywords that stand out (threshold value) among 1103 keywords by looking at the "occurrence of at least 3 times between articles" in the VOSviewer program are given in Table 3.

Table 3. The Most Frequently Used Keywords

No	Keyword	Frequency	Total Link Strength
1	Literacy	71	85
2	Primary Education	63	90
3	Primary School	28	32
4	Digital Literacy	24	43
5	Reading	20	38
6	Elementary School	15	16
7	Scientific Literacy	13	13
8	Information And Communication Technology (Ict)	12	21
9	Media Literacy	11	20
10	Writing	10	22

When the keywords presented in Table 3 are analyzed, the most frequently used keyword among the articles is literacy (f=85). However, although the keyword primary education (f=63) was the second most frequently used keyword among the articles, it was the keyword with the highest total link strength (f=90). Among the other keywords, the types of literacy that stood out in line with the purpose of our research were also among the top 15 keywords. These literacy types are digital literacy, scientific literacy, information and communication technology, media literacy and visual literacy. In addition to these, the keywords literacy practices, reading, writing and reading comprehension are related to the keyword literacy, which is the most basic meaning of literacy.

The data obtained in the VOSviewer software were filtered with the option of 'occurring at least 3 times between articles'. Accordingly, the network map showing the relationship between 85 (threshold) keywords among 1103 keywords is as shown in Figure 3.

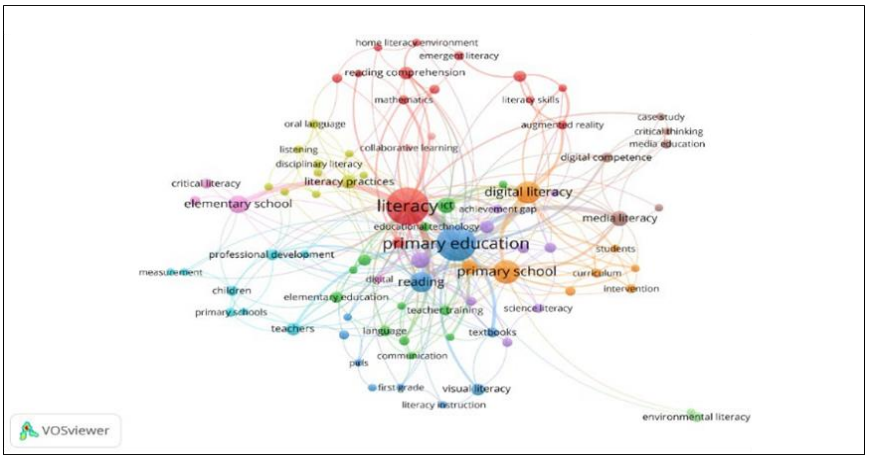


Figure 3. The Network Map of Most Used Keywords in Articles

Figure 3 shows that keywords with a threshold value of 85 are grouped into 11 clusters (11 different colors). The number of links between these keywords is f=291 and the total link strength is f=416 in Figure 3. The network map in Figure 3 shows different types of literacy such as literacy, early literacy, digital literacy, scientific literacy, visual literacy, ict literacy, information literacy, home literacy, critical literacy, health literacy, reading literacy, literacy development with the filtering option 'occurring at least 3 times between articles'. It can be seen in the network map that the key concepts of primary education, primary school, media literacy, digital literacy and elementary school have strong connections with each other (thick colored lines). The density map of the keywords analyzed in the VOSviewer program (at a threshold of 85) is given in Figure 4.

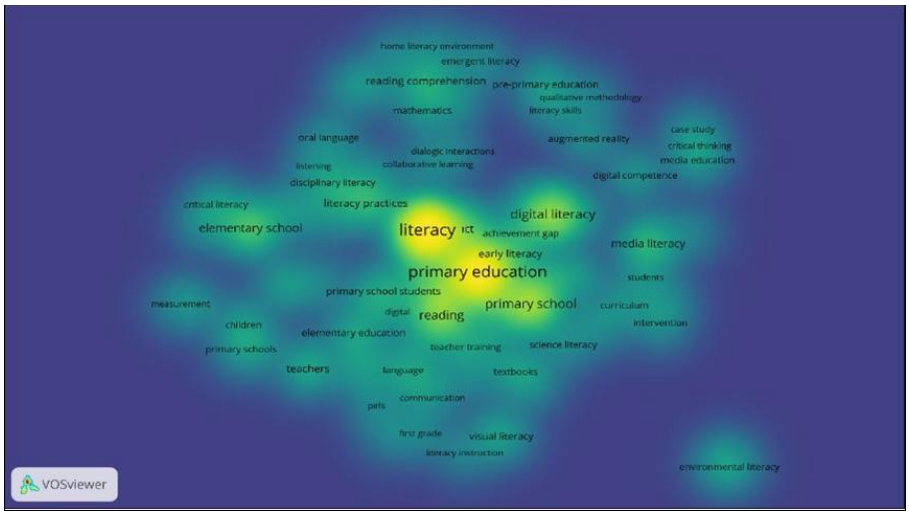


Figure 4. The Density Map of the Most Used Keywords in Articles

When the density map given in Figure 4 is examined, it is seen that the keywords literacy, primary education, primary, school, digital literacy in the yellow-colored areas is mentioned very frequently. It is seen in Figure 3 that the keywords frequently mentioned from yellow to green are elementary school, scientific literacy, information and communication

technology, media, literacy, writing, literacy practices, teachers, reading comprehension, early literacy, visual, literacy. It is seen that the keywords in green color are mentioned less frequently in the articles compared to other colors.

5. *What is the Network of the Most Cited Articles in the Category of 'Education/Educational Research' Related to Primary Education and Literacy and the Common Citation Network of These Articles? Findings Related to the Sub-Problem*

The data obtained in line with the fifth sub-problem of the study, "Which are the most cited articles in the category of 'education/educational research' related to the field of 'literacy' and primary education'?" were analyzed by filtering with the '10 citations to at least one publication' option in the VOSviewer program. As a result of this analysis, the 10 most cited articles are presented in Table 4.

Table 4. The Most Cited Articles

No	Article Title	Number of Citations
1	Sénéchal, M. (2006). Testing the home literacy model: Parent involvement in kindergarten is differentially related to grade 4 reading comprehension, fluency, spelling, and reading for pleasure. *Scientific studies of reading,* 10(1), 59-87	351
2	Wharton-McDonald, R., Pressley, M., & Hampston, J. M. (1998). Literacy instruction in nine first-grade classrooms: Teacher characteristics and student achievement. *The elementary school journal,* 99(2), 101-128.	161
3	Van Steensel, R. (2006). Relations between socio-cultural factors, the home literacy environment and children's literacy development in the first years of primary education. *Journal of research in reading,* 29(4), 367-382.	151
4	Zucker, T. A., Moody, A. K., & McKenna, M. C. (2009). The effects of electronic books on pre-kindergarten-to-grade 5 students' literacy and language outcomes: A research synthesis. *Journal of educational computing research,* 40(1), 47-87.	113
5	Hindman, A. H., Skibbe, L. E., Miller, A., & Zimmerman, M. (2010). Ecological contexts and early learning: Contributions of child, family, and classroom factors during Head Start, to literacy and mathematics growth through first grade. *Early childhood research quarterly,* 25(2), 235-250.	107
6	Katzir, T., Lesaux, N. K., & Kim, Y. S. (2009). The role of reading self-concept and home literacy practices in fourth grade reading comprehension. Reading and Writing, 22(3), 261-276.	104
7	Lee, O., Deaktor, R. A., Hart, J. E., Cuevas, P., & Enders, C. (2005). An instructional intervention's impact on the science and literacy achievement of culturally and linguistically diverse elementary students. *Journal of Research in Science Teaching: The Official Journal of the National Association for Research in Science Teaching*, *42*(8), 857-887.	96
8	Pérez-Escoda, A., Castro-Zubizarreta, A., & Fandos-Igado, M. (2016). Digital Skills in the Z Generation: Key Questions for a Curricular Introduction in Primary School. *Comunicar. Media Education Research Journal*, *24*(2).	87
9	Byrne, B., Samuelsson, S., Wadsworth, S., Hulslander, J., Corley, R., DeFries, J. C., & Olson, R. K. (2007). Longitudinal twin study of early literacy development: Preschool through Grade 1. *Reading and Writing*, *20*(1), 77-102.	79
10	Comber, B., Thomson, P., & Wells, M. (2001). Critical literacy finds a place: Writing and social action in a low-income Australian grade 2/3 classroom. *The Elementary School Journal, 101*(4), 451-464.	76

When Table 4 is analyzed, the most cited article is Sénéchal's (2006) "Testing the home literacy model: Parent involvement in kindergarten is differentially related to grade 4 reading comprehension, fluency, spelling, and reading for pleasure" ranks first with 351 citations. In this study,

Sénéchal (2006) examined the longitudinal relationships between early literacy experiences at home and children's kindergarten literacy skills, grade 1 word reading and spelling skills, and grade 4 reading comprehension, fluency, spelling, and reading for pleasure. From this point of view, the most basic definition of "literacy" in this study is related to "reading and writing".

When the 15 most cited articles in Table 4 are examined, it is seen that the concept of literacy is generally related to literacy, but the findings in the remaining sections reveal that research has been conducted on different types of literacy such as food and nutrition literacy (Katz et al., 2011), digital literacy (Pérez-Escoda et al., 2016), critical literacy (Souto-Manning, 2009). The network map that emerged when filtered as "10 citations to at least one publication" in the VOSviewer software is presented in Figure 5.

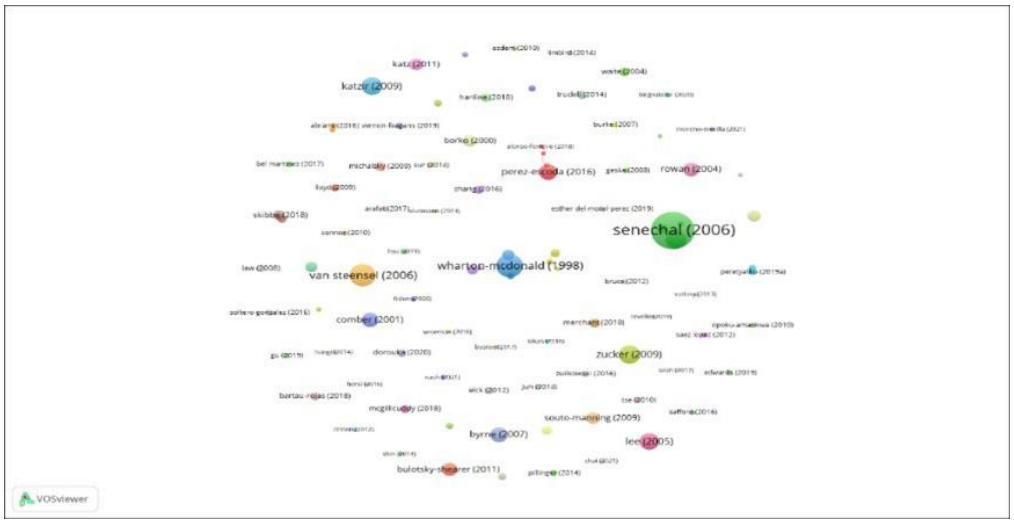


Figure 5. The Network Map of Articles with at least 10 Citations

The network map in Figure 5 shows that 94 threshold values (articles) were reached from 459 articles by filtering 10 citations to at least one publication. These articles, which were analyzed in the VOSviewer program, formed 80 clusters. The articles in the first 8 clusters have at least 2 authors. The other clusters consist of single authors. The Sénéchal (2006) group, shown in green in Figure 5, and the Pérez-Escoda (2016) group, shown in red cluster, consist of 4 authors. The Wharton-Mcdonald (1998) group in the blue cluster in the middle of the network map and the Block et al., (2002) group in the yellow cluster next to it consist of 3 authors. The remaining 4 clusters consist of two authors each. The number of links between these clusters and authors is 16. The density map resulting from the analysis of the most cited articles in the VOSviewer program is as shown in Figure 6.

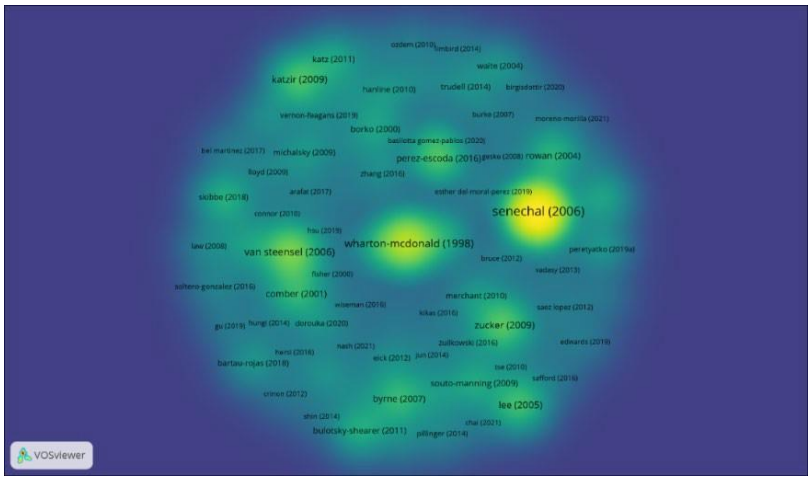


Figure 6. The Density Map for Articles with At Least 10 Citations

When Figure 6 is examined, according to the number of citations of articles with at least 10 citations, Sénéchal (2006) is located in the density map with the highest number of citations in yellow color. Wharton-Mcdonald (1998) and Van Steensel (2006) are located in the yellow-colored region with a lower density. The colors in which other authors are located in the network map are in the regions from yellow to green according to the number of citations.

In line with the question of the fifth sub-problem of the research, how is the co-citation network of the articles in the category of 'education/educational research' related to the field of primary education and literacy? 45 threshold values were obtained by filtering the VOSviewer program as 'citing the cited work at least 6 times'. Of these thresholds, 2 were excluded from the analysis due to 'title not found/no title captured' error. 1 threshold value was not included in the co- citation analysis because it could not establish a link with other articles. As a result of the analysis, 17 of the co-cited publications are presented in Table 5.

Table 5. Studies Cited in Common by the Articles

No	Article Title	Number of Co-Cited Citations	Total Link Strength	Google Scholar Number of Citation
1	Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes.* Harvard University Press	12	17	143.814
2	Adams, M. J. (1994). *Beginning to read: thinking and learning about print.*	12	41	12.485
3	Cazden, C., Cope, B., Fairclough, N., Gee, J., Kalantzis, M., Kress, G., ve Nakata, M. (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review*, 66(1), 60-92.	12	10	3.690
4	Juel, C. (1988). Learning to read and write: A longitudinal study of 54 children from first through fourth grades. *Journal of educational Psychology*, 80(4), 437.	11	35	4.206
5	Snow, C.E., Burns, M.S., ve Griffin, P. (eds.) (1998). Preventing reading difficulties in young children. *Washington, DC: National Academy Press,* 432 pp.	9	24	12.148

6	Stanovich, K. E. (2009). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Journal of Education,* 189(1-2), 23-55.	9	22	10.503
7	Duncan, G. J., Dowsett, C. J., Claessens, A., Magnuson, K., Huston, A. C., Klebanov, P., ve Japel, C. (2007). School readiness and later achievement. *Developmental Psychology*, 43(6), 1428.	9	15	6.751
8	Whitehurst, G. J., ve Lonigan, C. J. (1998). Child development and emergent literacy. *Child Development*, 69(3), 848-872.	9	20	4.303
9	Barton, D., Hamilton, M., ve IvaniÚc, R. (Eds.). (2000). *Situated Literacies* (pp. 7-15). London: Routledge.	9	13	2.978
10	Wagner, R. K., Torgesen, J. K., Rashotte, C. A., ve Pearson, N. A. (1999). Comprehensive test of phonological processing: CTOPP. Austin, TX: Pro-ed.	9	27	2.957

When Table 5 is examined, Vygotsky (1978), Adams (1994) and Cazden et al. (1996) stand out with 12 citations at the threshold value of 'citing the cited work at least 6 times'. The articles analyzed within the scope of the study cited these three studies together. On the other hand, the total link strength of Vygotsky (1978) and Cazden et al. (1996) is lower than the total link strength of Adams' (1994) Beginning to read: thinking and learning about print. Table 5 is important in terms of showing the studies co-cited by the articles and revealing the classics in this field. As a matter of fact, these studies revealed in the co-citation analysis were also supported by Google Scholar citation counts. Of the top 10 publications in Table 5, nine (9) - with the exception of Vygotsky (1978) - are directly related to literacy or literacy learning in its most basic sense. When Vygotsky's (1978) publication is a study on developmental psychology, cognitive development and language development, we can indirectly consider it within the literature of the articles. The network map that emerged when the VOSviewer software was filtered as "the cited study has at least 6 citations to at least one publication" is presented in Figure 7.

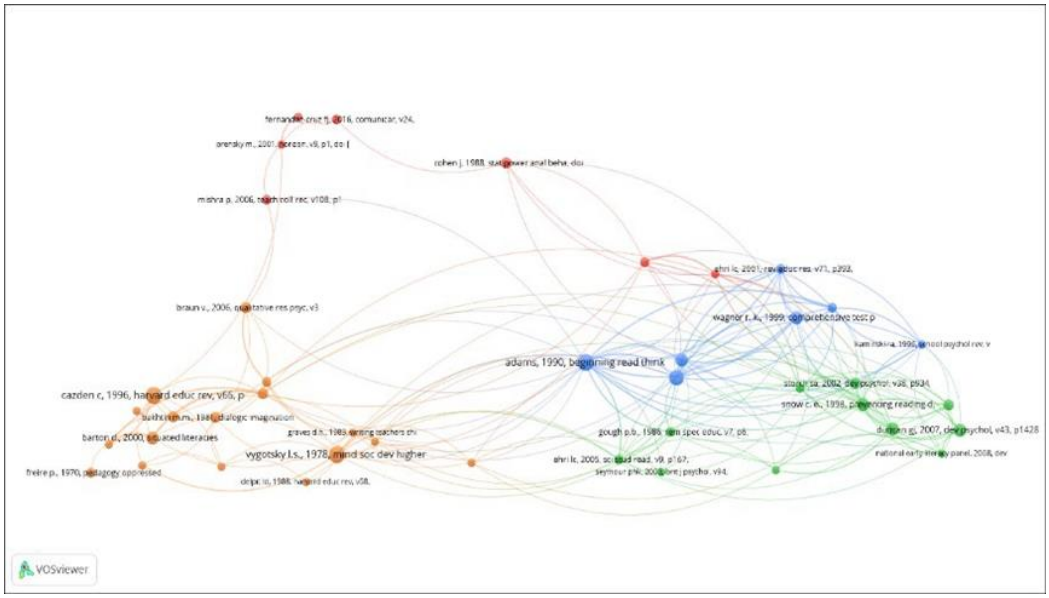


Figure 7. The Common Citation Network Map of Cited Studies

When Figure 7 is examined, 45 threshold values were obtained by filtering 'citing the cited study at least 6 times' in the VOSviewer program. Of these thresholds, 2 were excluded from the analysis due to 'title not found/no title captured' error. 1 threshold value was not included in the co- citation analysis because it could not establish a link with other articles. The 42 publications included in the bibliographies of the articles and co-cited were grouped into 4 clusters on the network map. The number of links of 4 clusters was 183 and the total number of links was 275. In Figure 7, there are 17 studies/authors in the orange cluster, 11 studies/authors in the green cluster, 7 studies/authors in the blue cluster and 7 studies/authors in the red cluster. The density map of the studies cited as a result of the co-analysis of the articles in the VOSviewer software is shown in Figure 8.

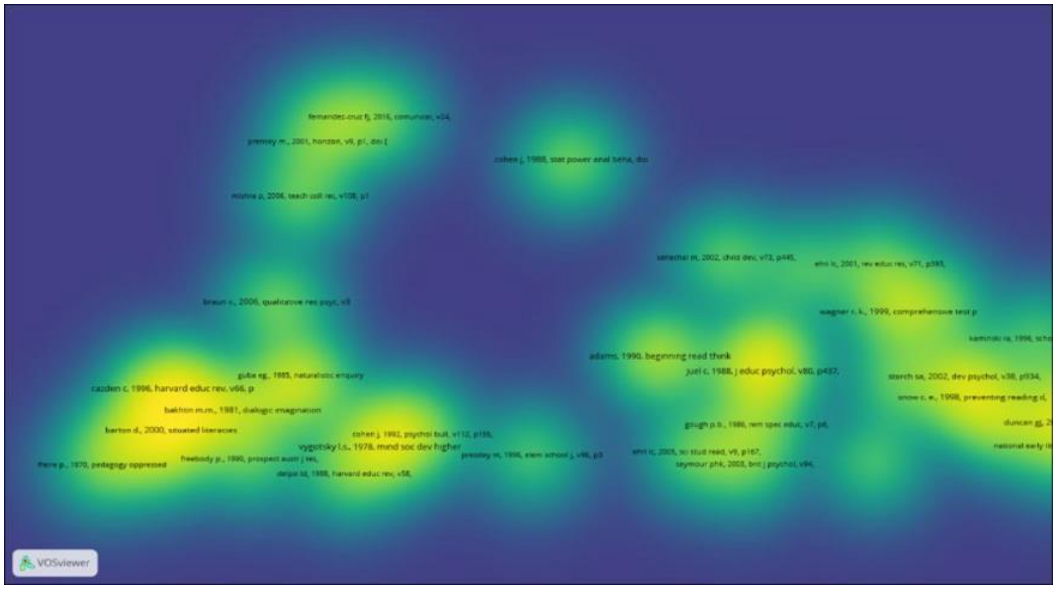


Figure 8. The Common Citation Density Map of Cited Studies

When Figure 8 is examined, it is seen that the density is higher in the yellow-colored section in the lower left region and there are highly cited studies by Vygotsky (1978), Cazden et al. (1996) and Barton and IvaniÚc (2000). Other parts of the density map are clustered from yellow to green. This shows that the density is gradually decreasing.

6. *Which Researchers, Journals, Countries and Institutions are Active in the Articles in the 'Education/Educational Research' Category Related to Primary Education and Literacy? Findings Related to the Sub-Problem*

In line with the sixth sub-problem of the study, who are the active researchers in the articles published in the category of education/educational research related to the field of 'primary education' and 'literacy'? 1011 threshold values were obtained from 1011 authors with the filters "a researcher has at least 0 citations" and "a researcher has at least 1 article" in the VOSviewer program. Among these 1011 threshold values (authors), the program analyzed 1000 data. The data obtained were ranked based on the researcher who wrote the most articles with the excel program. The first eighteen (18) of the researchers with the highest number of articles are given in Table 6.

Table 6. Distribution of Active Researchers in Articles

No	Author	Number of Articles	Number of Citations	Link Strength
1	Abrami, Philip C.	4	67	40
2	Guzman-Simon, Fernando	4	16	7
3	Skibbe, Lori E.	3	177	7
4	Zimmerman, Lisa	3	14	7
5	Pressley, Michael	2	201	19
6	Garcia-Jimenez, Eduardo	3	13	6
7	Moreno-Morilla, Celia	3	13	6
8	Lysenko, Larysa	2	20	17
9	Benton, Laura	2	5	14
10	Herbert, Elisabeth	2	5	14

When Table 6 is analyzed, Philip C. Abrami is the first active researcher with 4 articles (67 citations - 40 link strength), Fernando Guzman-Simon is the second with 4 articles (16 citations - 7 link strength). Lori E. Skibbe ranks third with 3 articles (177 citations - 7 link strengths), Lisa Zimmerman ranks fourth with 3 articles (14 citations - 7 link strengths). Eduardo Garcia-Jimenez and Celia Moreno-Morilla are in fifth place with 3 articles (13 citations - 6 link strength). Michael Pressley ranks sixth with 2 articles (201 citations - 19 link strength) and Larysa Lysenko ranks seventh with 2 articles (20 citations - 17 link strength). In this table, Michael Pressley stands out with 2 articles, 201 citations - 19 link strength.

In the VOSviewer software, 1011 threshold values were obtained among 1011 authors with the filters "a researcher has at least 2 citations" and "a researcher has at least 2 articles". Among these 1011 thresholds (authors), the program analyzed 57 data. However, at the last stage of the network map, it was warned that 53 researchers were connected to each other (33-number of connections) and the others were not connected to each other. The eliminated active researchers are shown in Figure 9.

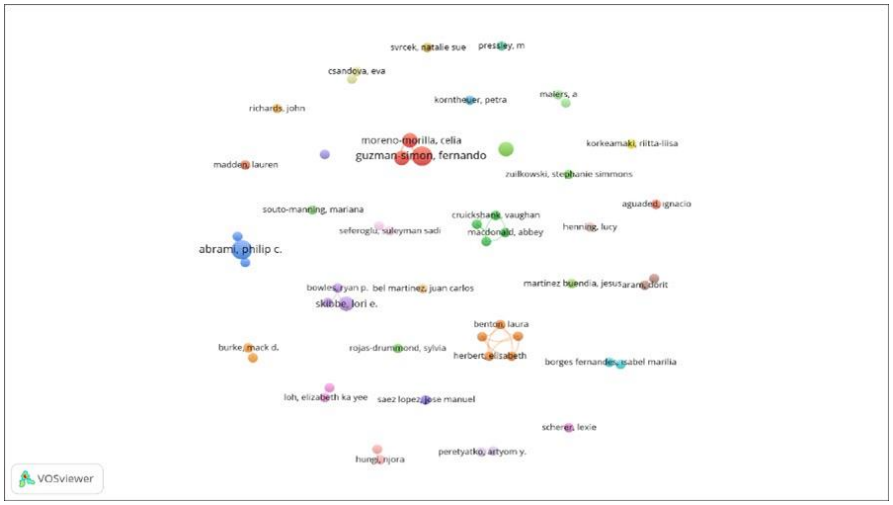


Figure 9. The Network Map of Active Researchers in Articles

Figure 9 shows 31 clusters of active researchers (f=53). The number of connections of 31 clusters was 33 and the total connection strength was found to be 67. There are 5 authors in the first cluster, 4 authors in the

second cluster, 3 authors in the third, fourth and fifth clusters, and 2 authors between the sixth and fourteenth clusters. There is 1 author in the other clusters. Therefore, there are links between the authors in the first 14 clusters. In clusters with 1 author, there are no links. The orange cluster in Figure 8 is the first cluster with 5 authors and a total link strength of 8.

The authors in this cluster are Laura Benton, Elisabeth Herbert, Nelly Joye, Emma Sumner and Asimina Vasalou. In the green cluster are Vaughan Cruickshank, Shandell Elmer, Abbey Macdonald and Shane Pill. Philip C. Abrami, Larysa Lysenko and Robert Savage are in the blue cluster. The red cluster in the network map includes the authors Fernando Guzman-Simon, Eduardo Garcia-Jimenez and Celia Moreno-Morilla. The density map that emerged as a result of the analysis of the active researchers in the articles in the VOSviewer software is as shown in Figure 10.

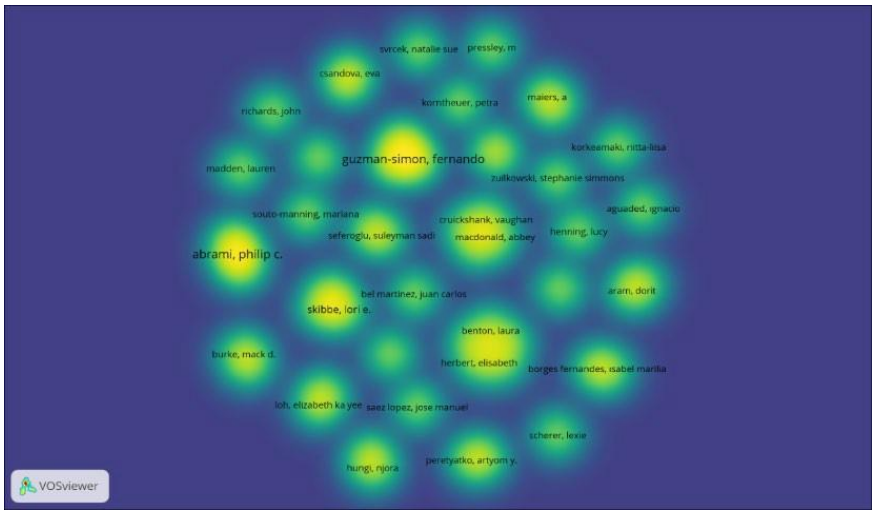


Figure 10. The Density Map of Researchers Active in Articles

When the density map in Figure 10 is examined, it is seen that the clusters with a high number of authors are colored yellow. According to the density map, the clusters with Fernando Guzman- Simon, Philip C. Abrami, Benton and Lori E. Skibbe are colored yellow. The other clusters decrease in density as both the number of articles and the number of links decrease from yellow to green. The clusters colored green have the least density.

In line with the sixth sub-problem of the study, which journals are active in the articles published in the category of education/educational research related to the field of 'primary education' and 'literacy',

220 journals were analyzed in the VOSviewer software by filtering them as "at least 3 articles published in a journal" and "a journal receiving at least 1 citation". Of the 41 threshold (journal) values obtained, 10 are given in Table 7

Table 7. The Journals Active in Articles

No	Name of Journal	Number of Articles	Number of Citation	h-index	Impact Factor	Q Value
1	Reading and Writing	10	290	80	3.09	Q1
2	Education 3-13	7	11	26	1.44	Q3
3	Journal of Early Childhood Literacy	7	76	40	2.23	Q1
4	Journal of Research in Reading	7	192	53	2.74	Q1
5	Early Childhood Research Quarterly	6	290	105	4.12	Q1
6	Elementary School Journal	6	436	83	1.54	Q2
7	Language and Literacy	6	15	-	-	Q4
8	Reading Teacher	6	70	53	1.12	Q1
9	L1 Educ. Studies in Lang. and Literature	5	4	15	1.25	Q2
10	Literacy	5	31	28	1.64	Q1

When Table 7 is examined, it is seen that Reading and Writing ranks first with 290 citations in 10 articles. However, it is indexed in Q1. Education 3-13, Journal of Early Childhood Literacy and Journal of Research in Reading have the same number of publications with 7 articles. However, while Education 3-13 is indexed in Q3, Journal of Early Childhood Literacy and Journal of Research in Reading are indexed in Q1. However, the Journal of Research in Reading received more citations (192). Early Childhood Research Quarterly received 290 citations with 6 articles, while Elementary School Journal received 436 citations with 6 publications. Thirteen (f=13) of the journals in Table 7 are in Q1. It is seen that there are three journals in Q2 and Q4 indexes (f=3) and one journal in Q3 index (f=1).

When the data were analyzed in the VOSviewer software, 220 journals in which the articles were published were found. The analysis was filtered as "at least 3 articles published in a journal" and "at least 1 citation in a journal". As a result of the filtering, 41 threshold values (journals) emerged. The network map of the journals is shown in Figure 11.

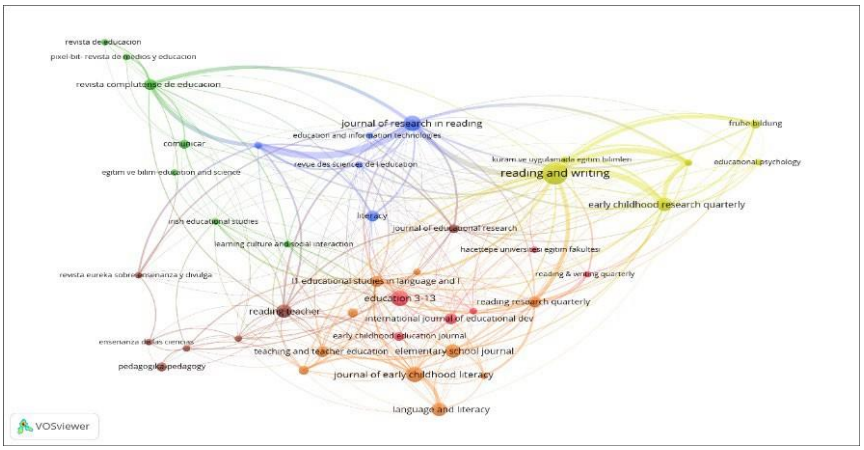


Figure 11. The Network Map of Active Journals in Articles

When Figure 11 is analyzed, the journals seen in the network map formed 41 thresholds (journals). The number of links of the journals gathered in 6 clusters is 294 and the total link strength is 1089. The orange cluster in the network map of journals consists of 10 journals, the green cluster consists of 7 journals, and the burgundy cluster consists of 7 journals. The turquoise and yellow clusters contain 6 journals, while the blue cluster consists of 5 journals. Reading and Writing, which is the most active journal and in the 5th cluster, has 10 articles, 239 total link strength and 30 links, and it is seen that it has strong links with Journal of Research in Reading, Early Childhood Research Quarterly, Reading Research Quarterly, Scientific Studies of Reading. The density map that emerged as a result of the analysis of the journals active in the articles in the VOSviewer program is given in Figure 12.

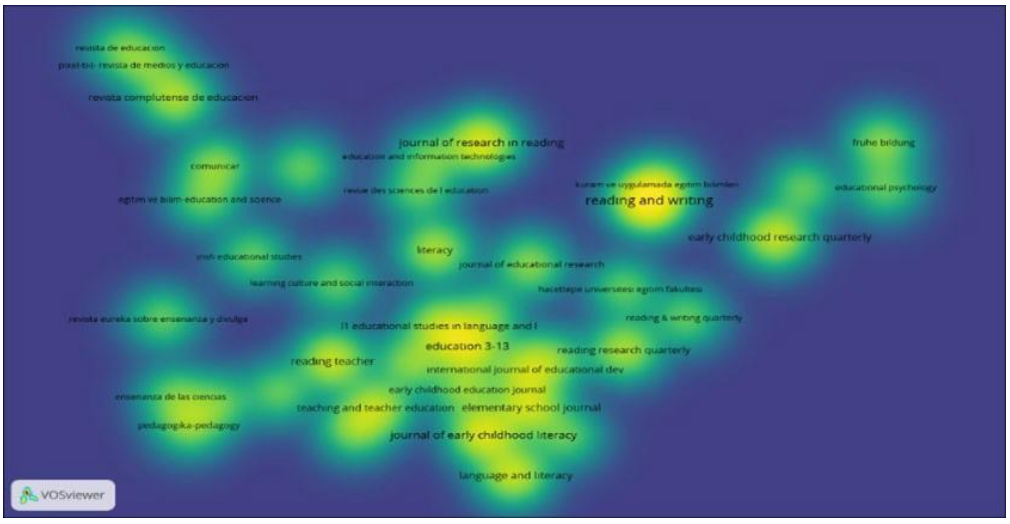


Figure 12. The Density Map of Active Journals

When Figure 12 is examined, Reading and Writing, the journal with the highest number of articles (f=10), is seen as the cluster with the most intense yellow color. In the middle part of the density map, Education 3-13, Journal of Early Childhood Literacy, Journal of Research in Reading, Early Childhood Research Quarterly, Elementary School Journal, Language and Literacy, Reading Teacher have yellow colors/intensity. It can be said that the number of articles in the journals decreases from yellow color tones to green color tones.

In line with the sixth sub-problem of the research, which countries are active in the articles published in the category of education/educational research related to the field of 'elementary education' and 'literacy', it was analyzed by filtering as "at least 2 articles published in a country" and "at least 1 citation for a country" in the VOSviewer program. In this analysis, bibliography matching was used. The resulting 15 threshold (country) values out of 64 countries are shown in Table 8.

Table 8. The Active Countries in Articles

No	Country	Number of Journal	Number of Citations	Link Strength
1	USA	97	1755	2278
2	Spain	52	315	851
3	England	32	270	1002
4	Canada	27	548	1256
5	Australia	24	237	552
6	Türkiye	21	80	348
7	South Africa	16	61	337
8	China	13	107	386
9	Germany	11	50	438
10	Brazil	10	1	38
11	Finland	8	37	568
12	France	8	39	499
13	Greece	8	45	258
14	Norway	8	128	618
15	Sweden	7	98	438

Table 8 shows that the USA is the most active country in primary education and literacy with 97 articles in the WoS database. It is also the country with the highest link strength and number of citations among the publications in the related field. Spain ranks second with 52 articles, the UK ranks third with 32 articles, Canada ranks fourth with 27 articles and Australia ranks fifth with 24 publications. Turkey has 21 articles. The number of citations of our country ranks 13th among countries with 80 citations and tenth in link strength with 348. The network map of 64 countries that emerged as a result of filtering "at least 2 articles published in a country" and "at least 1 citation in a country" in the VOSviewer program is presented in Figure 13.

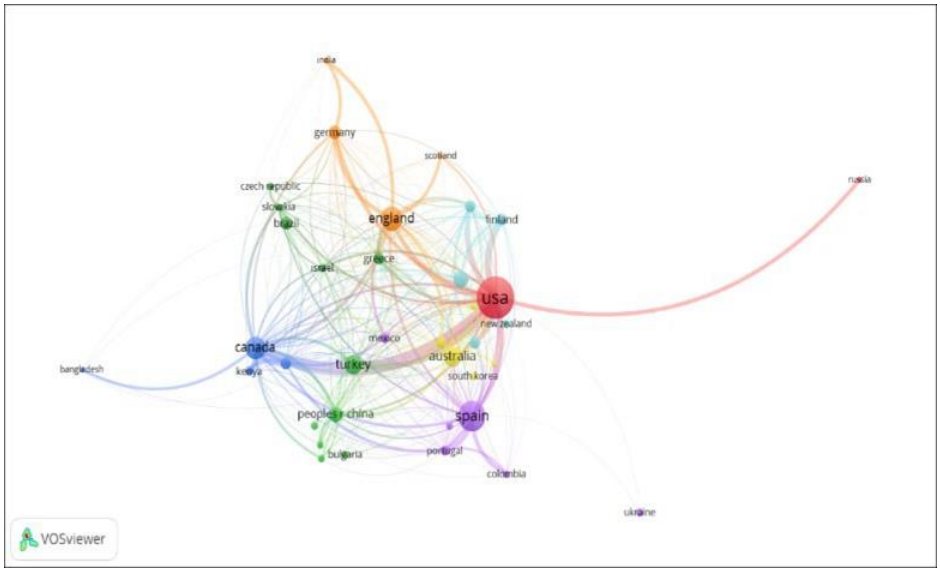


Figure 13. Network Map of Active Countries

When Figure 13 is analyzed, 37 countries, 8 clusters, 344 links and 6385 total link strengths were found. The network map of active countries shows that the USA is the most active country in the articles analyzed with 97 articles, 35 links with 35 countries and 2278 total link strength. In the

analyzed articles, it is seen in the network map that the countries that have strong connections with the articles published in the US country are Spain, Canada, England, Turkey, Australia and Finland.

In the first cluster (f=6) formed by the thresholds (countries), there are six countries shown in purple on the network map. The prominent country in this cluster, which is colored purple in the network map, is Spain depending on the number of articles. The second cluster (f=6), which is colored in green on the network map, again consists of six countries (f=6). It can be seen that the prominent country in this cluster is China. In the third cluster of countries (f=5), which is colored in black on the network map, Brazil has a high visibility according to the number of articles. The number of countries in the fourth cluster (f=5) is five. The fourth cluster is colored turquoise in the network map and the country of South Africa stands out. The number of countries (f=5) in the fifth cluster, which is colored yellow in the network map, is five and the prominent country is Australia. The sixth cluster is colored blue in the network map and the number of countries (f=4) is four. In this cluster, Canada is more prominent due to the number of articles. The seventh cluster, which is colored orange in the network map, has four countries (f=4) and the UK is more prominent due to the number of articles. The last cluster is the red cluster formed by Russia, which differs from all clusters, and the USA, which has the highest number of articles and links. The density map resulting from the analysis of the countries active in the articles in the VOSviewer program is given in Figure 14.

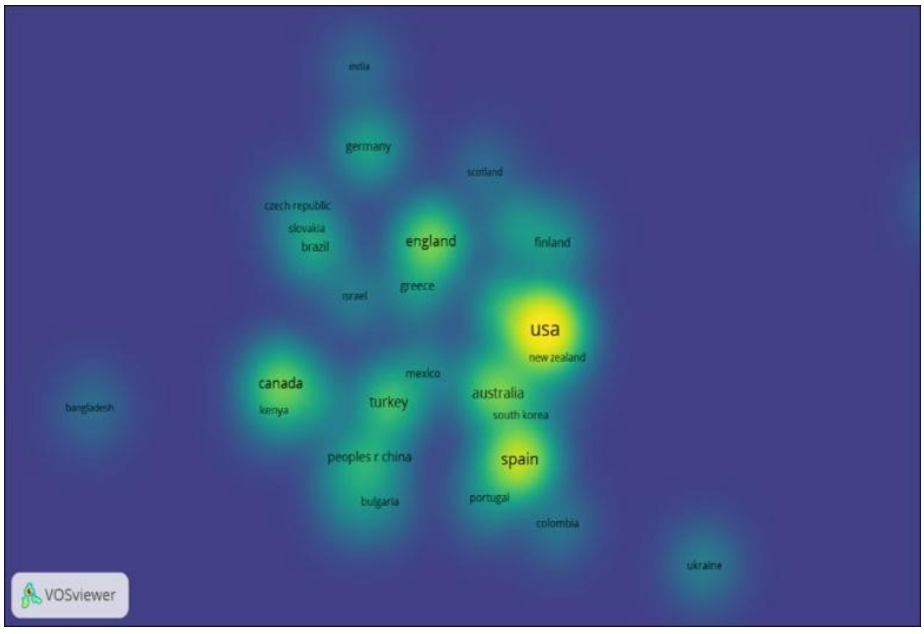


Figure 14. Density Map of Active Countries

When Figure 14 is examined, it is seen that there is a density of articles in the eighth cluster region where the USA, which has the highest number of articles, is located. The other dense cluster is the cluster region where Spain, which constitutes the first cluster, is located. Transitions from yellow to green tones mean that the density decreases in terms of the number of articles. Ukraine, Bangladesh and India are the clusters with the lowest density.

In line with the sixth sub-problem of the study, which institutions are active in the articles published in the category of education/educational research related to the field of 'primary education' and 'literacy', bibliography matching/institutions analysis was used in the VOSviewer program by filtering as "citing at least 1 institution" and "an institution having at least 3 publications". As a result of this analysis, 37 threshold values (institutions/universities) emerged. Information on these institutions is (n=20) shown in Table 9.

Table 9. Institutions Active in Articles

No	Organizations	Number of Article	Number of Citations	Link Strength
1	Florida State University (USA)	8	116	331
2	University of Seville (Spain)	7	28	154
3	University of Michigan (USA)	6	291	476
4	University of Cantabria (Spain)	6	109	117
5	University of Huelva (Spain)	6	35	213
6	Michigan State University (USA)	5	213	460
7	McGill University (Canada)	5	99	437
8	Concordia University (Canada)	5	64	317
9	Universities South Africa (Güney Afrika)	5	24	50
10	Universidad de Salamanca (Spain)	5	14	36
11	University of Notre Dame (USA)	4	233	94
12	The University of North Carolina (USA)	4	161	162
13	University of Colorado (USA)	4	152	56
14	The University of Hong Kong (Hong Kong)	4	72	54
15	University of Georgia (USA)	4	65	115
16	University of Cambridge (England)	4	32	38
17	University of Missouri (USA)	4	19	199
18	University of Murcia (Spain)	4	16	28
19	University of Calgary (Canada)	4	15	20
20	Jyväskylä University (Finland)	4	12	224

When Table 9 is analyzed, Florida State University has the highest number of articles (f=8). The University of Seville ranks second with seven articles (f=7). The University of Michigan, Cantabria and Huelva are in third place with six articles (f=6). The top five universities belong to the USA and Spain. In this table, there are twelve universities from the USA (f=12) and five universities from Spain (f=5). The University of Michigan stands out with 6 articles, 291 citations and 476 total link strength. Similarly, Michigan State University stands out with 5 articles, 213 citations and 460 total link strength. From our country, Gazi University ranks 27th with 3 articles, 16 citations and 2 links. The network map obtained from the bibliography matching/institutions analysis by filtering 'citing at least 1 institution' and 'an institution having at least 3 publications' with the VOSviewer program is presented in Figure 15.

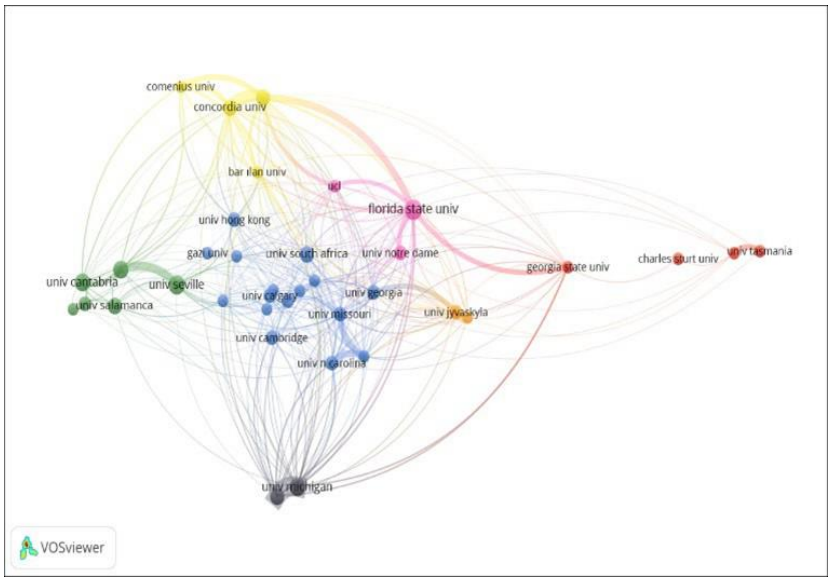


Figure 15. Network Map of Active Institutions in Articles

Figure 15 shows that 37 thresholds are divided into 7 clusters. There are 329 connections and 2407 total connections between these clusters. The first cluster consists of 16 universities. This cluster, which is colored blue in the middle part of the network map, contains the highest number of universities. The cluster seen in green on the network map is the second cluster and the number of universities in this cluster is 6. The third cluster in the yellow colored area has 4 universities. The fourth cluster, which is relatively separated from the network map in red, consists of 4 universities. The fifth cluster is colored pink in the network map.

The sixth cluster with effective performance in articles is the University of Michigan and Michigan State University. It can be seen that these two universities, colored in black on the network map, have strong connections with other universities. The last cluster is colored orange on the network map. This seventh cluster is also composed of two universities. The density map obtained from the bibliography matching/institutions analysis by filtering 'citing at least 1 institution' and 'an institution having at least 3 publications' with the VOSviewer program is given in Figure 16.

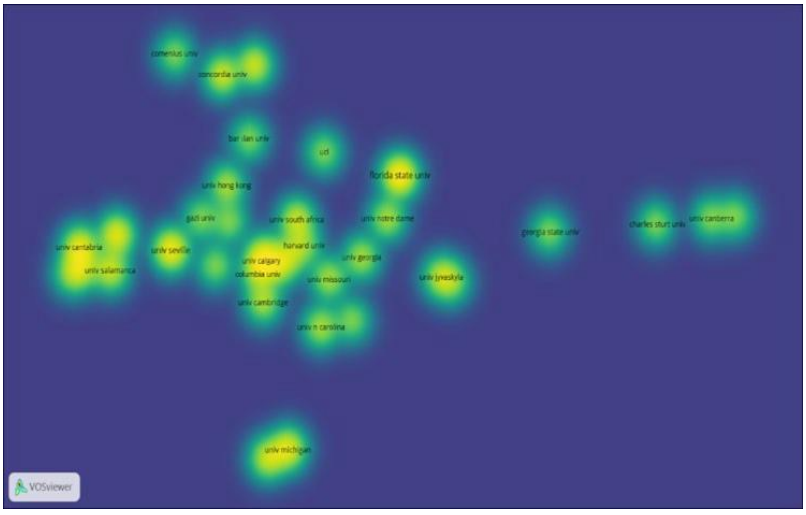


Figure 16. Density Map of Effective Institutions in Articles

When Figure 16 is examined, it is seen that the universities in the yellow clusters are more dense according to the number of articles. Since Florida State University, University of Seville, University of Michigan, University of Cantabria and University of Huelva are the top five universities in terms of the number of articles, they are located in the yellow clusters in the density map. It can be seen that the density decreases as the number of articles decreases from yellow to green. The universities with the lowest number of articles are completely colored green in the density map.

Conclusion and Discussion

The aim of this study is to identify and evaluate the trends of the articles scanned in the Web of Science database on the concept of literacy in primary education. In the primary education process, which is seen as the most important stage of the education process, the traditional literacy concept has revealed different literacy concepts due to rapidly developing information and technology fields. The field of education, which is naturally affected by these developments and changes, is home to many researches. It is also important for the field of education to examine many studies in general and in which direction they tend. While traditional literature reviews work with smaller samples/groups, methods and techniques have emerged in the increasing publishing world where more research is examined more quickly. One of these techniques is bibliometric analysis. Bibliometric analyses are important in terms of determining the direction of changes and developments in a field, determining the situation / fact / facts that cannot be detected in a field scientifically and guiding researchers for future studies. With bibliometric research, measurements are made to measure journal performance, to measure the individual performance of researchers, and by revealing bibliometric laws and indicators (Guterrez-Salcedo et al., 2018, 1276). In this direction, in this study, bibliometric research was conducted on the development and change of the concept of literacy in primary education. Looking at the descriptive analysis results of the research;

In 459 articles searched with the keywords primary education and literacy in the Web of Science (WoS) database, 48 different types of literacy were found. According to this result, the most common type of literacy in the articles is the most basic type of literacy. Similarly, it was concluded that there are many literacy concepts in research. In Mete's (2020) study titled 'Types of literacy and 2023 education vision document', the literacies examined in theses in Turkey were examined and 47 different literacy concepts were found. When the results obtained from the theses are compared with the results found in WoS in literacy research in the field of primary education, 22 literacy concepts are similar. The analysis of theses in Turkey was carried out with 463 theses in the field of education. The result of this study is important because it reveals the picture of different literacy concepts studied in theses in Turkey in general, although not in primary education. Likewise, the results of this study reveal the general trend of articles published in the WoS database in primary education. Similarly, Sur (2022), in his study titled 'The concept of literacy and a review on literacy research in Turkey', examined theses and articles conducted in Turkey. As a result of this research, he reached 51 different literacy concepts.

When the Web of Science (WoS) database was searched with the keywords primary education and literacy, it was concluded that there were -459-

articles in the category of 'education/educational research'. Similarly, Yeşiltaş and Evci (2021), in their study titled 'A bibliometric analysis of computer literacy studies in education', found the most articles in the categories related to education.

In the literature review conducted between 1975 and 2022 in the category of education/educational research on the concept of literacy in primary education, it is seen that there were no studies directly related to primary education and literacy in the studies conducted between 1975 and 1985, a few studies were conducted after 1985, there was a noticeable increase in research after 2005, and the most studies were conducted in 2020. The results of Yeşiltaş and Yılmazer (2021), who conducted a similar study on media literacy, also point to a similar graph.

Another result of the research is that the most used language in the articles - 317 articles - is English. Spanish comes after English. In some studies, on literacy, similar results were found that English and Spanish are the most used languages (Bozdoğan, 2020; Yeşiltaş & Akcan, 2021; Yeşiltaş & Evci, Yeşiltaş & Şeker, 2021; 2021; Yurdakul, 2021). As a matter of fact, the reason why English is frequently used is that it is both the language of science and the world (Marginson 2022; Rao, 2019).

When bibliometric results are analyzed;

As a result of the search in the WoS database with the concepts of primary education and literacy, it is seen that the most common key concepts are 'literacy, primary education, primary school, digital literacy'. We can say that this situation shows that the articles in the database were analyzed in accordance with the purpose of the research. Other key concepts that emerged are 'reading, elementary school, scientific literacy, information and communications tecnology (ict), media literacy, writing, literacy practices, teachers, reading comprehension, early literacy, visual literacy'.

Among the articles published in the education/educational research category of the concept of literacy in primary education, the most cited article is Sénéchal's (2006) 'Testing the home literacy model: Parent involvement in kindergarten is differentially related to grade 4 reading comprehension, fluency, spelling, and reading for pleasure'. When this article is examined, it is understood that literacy is related to 'reading and writing' in its most basic sense. In our language, it can be translated as 'home literacy environment'. 161 citing Wharton-McDonald (1998), 'Literacy instruction in nine first-grade classrooms: Teacher characteristics and student achievement.' In this article, the most basic meaning of literacy was the subject of the study. Van Steensel (2006) is in third place with 151 citations in his study 'Relations between socio-cultural factors, the home literacy environment and children's literacy development in the first years of primary education'. In this article, the literacy type 'home literacy environment' was investigated.

Philip C. Abrami, Fernando Guzman-Simon, Lori E. Skibbe, Lisa Zimmerman, and Eduardo Garcia-Jimenez were found to be the top five active researchers among the researchers in the articles on primary education and literacy in the WoS database. When the most frequently cited articles on primary education and literacy were analyzed, Vygotsky's (1978) "Mind in Society: Development of Higher Psychological Processes", Adams' (1994) "Beginning to read: Thinking and learning about print" and Cazden et al.'s (1996) "A pedagogy of multiliteracies: Designing social

futures" were found to be the top three in both the number of articles and the number of citations in the bibliography match. Adams' (1994) 'literacy', which is the most basic meaning of literacy, was found in the cited studies. Vygotsky (1978), on the other hand, referred to the cognitive/social aspects of the concept of literacy, and Cazden et al. (1996) made references to multiple literacies. It was concluded that there were articles that examined the concepts of digital literacy and critical literacy differently in the top ten rankings.

Reading and Writing, Education 3-13, Journal of Early Childhood Literacy, Journal of Early Childhood Literacy and Journal of Research in Reading are the top 4 active journals in articles related to primary education and literacy. Of these 4 journals, only Education 3-13 is in the Q3 index, while the others are in the Q1 index. When the data obtained were analyzed, it was concluded that Reading and Writing was the journal that published the most articles in the field of teaching writing in Atasoy's (2022) study titled "A bibliometric review on the appearance of writing teaching research".

According to the results of the research, the USA is the most active country with 97 articles in articles scanned with the keywords primary education and literacy. It is also the country with the highest link strength and number of citations among publications in the relevant field. In this direction, the most active university in the USA is the University of Michigan, followed by Michigan State University. The second most efficient country is Spain with 52 articles, with the universities of Huelva, Cantabria and Seville coming to the fore. The UK ranks third with 32 articles, Canada fourth with 27 articles and Australia fifth with 24 publications. The result that the USA and Spain are in the first place in the ranking of literacy studies has also been reached in studies conducted in different literacy types and the results found are consistent with this result of the research (Aksu & Güzeller, 2019; Bozdoğan, 2020; Demir & Selvi, 2018; Özkaya, 2019; Yeşiltaş & Evci, 2021; Yurdakul, 2021; Yeşiltaş & Şeker, 2021; Yeşiltaş & Akcan, 2021).

When all the results of the research are evaluated, the literacy concepts obtained from the WoS database in the field of primary education and literacy (48); literacy, environmental literacy, family literacy, critical literacy, natural literacy, scientific literacy, health literacy, science literacy, assessment literacy, mental health literacy, integrated literacy, preschool literacy, functional literacy, financial literacy, ecological literacy, linguistic literacy, emotional literacy, physical literacy, digital and media literacy, disciplinary literacy, biotechnological literacy, music literacy, adolescent literacy, parental literacy, multiliteracy, computer literacy, ecological literacy, visual literacy, audiovisual literacy, cartographic literacy, critical media literacy, information and communication technologies, literacy, information literacy, media literacy, emergency literacy, academic literacy, home literacy environment.

As a result, research supports that the concept of literacy has become multidimensional (Lankshear & Knobel, 2008). For this reason, it is important to add literacy concepts to the curricula or to increase the achievements to which they belong in terms of the skills aimed to be achieved. Because, considering the high level of commitment of teachers to curricula in education and training processes (Burul, 2018), including different types of literacy, especially in primary education, as in countries

that have come to the forefront in education, can help students adapt faster to the developing and changing society in future education levels (Erdem & Eğmir, 2018). Because in the current curricula, literacy types are included more in verbal courses than in numerical courses. These curricula are middle and high school levels. Today, individuals are introduced to technological devices, changing and developing tools and equipment from an early age. For this reason, it is an indication that literacy types such as media and digital literacy, which are tried to be given at the middle school level, are actually an indication that the necessary importance is not given to literacy types (Mete, 2020). In this context, we can conclude that the different types of literacy revealed by the studies conducted in this context should be included in the education and training processes, starting from primary education, with direct acquisitions such as information and visual literacy types.

In line with the results obtained from the research, this study conducted in the WoS database can be conducted in international databases such as Scopus, Google Scholar and Microsoft Academic. In Turkey, it can be conducted in CHE National Thesis Center or well-established journals in the field of primary education in the type of 'a literacy'. In this study, literacy in primary education was investigated only in article type. Researchers can also conduct research in other types of publications. The concept of literacy in primary education can be examined in the context of articles and theses published in Turkey and the trend in the field can be revealed.

Contribution Rate of Authors

The first author contributed 60% and the second author contributed 40% to this research.

Conflict of Interest

The authors declare that they have no conflict of interest within the scope of this study.

Support and Acknowledgment

The authors declare that they did not receive any financial support for this study.

References

Adams, M. J. (1994). *Beginning to read: Thinking and learning about print.* Cambridge, MA: MIT Press.

Akcan, C., & Ablak, S. (2022). Eğitim alanında bilgi okuryazarlığı ile ilgili çalışmaların bibliyometrik analizi. *Uluslararası Sosyal Bilgilerde Yeni Yaklaşımlar Dergisi, 6*(2), 164-182.

Aksu, G., & Güzeller, C. O. (2019). Analysis of scientific studies on item response theory by bibliometric analysis method. *International Journal of Progressive Education, 15*(2), 44-64. doi: 10.29329/ijpe.2019.189.4

Akyol, H. (2007). *Okuma.* A. Kırkkılıç ve H. Akyol (Ed.). İlköğretimde Türkçe Öğretimi içinde (s. 15- 48). Ankara: Pegem Yayınları.

Atasoy, A. (2022). Yazma öğretimi araştırmalarının görünümüne ilişkin bibliyometrik bir inceleme. *Uluslararası Türkçe Edebiyat Kültür Eğitim Dergisi, 11*(3), 1150-1175.

Ateş, M. & Aşçı, A. U. (2021). *Okuryazarlık kavramı ve eğitimle ilişkili okuryazarlık türleri.* VII. TURKCESS Uluslararası Eğitim ve Sosyal Bilimler Kongresi 1-3 Eylül 2021 – KKTC: Lefkoşa

Aybey, S. (2018). Türkiye'deki Din eğitimi çalışmaları bağlamında 'Uluslararası Yüksek Din Öğretimi Kongresi' (2017) üzerine bibliyometrik analizler. *Amasya Üniversitesi İlahiyat Fakültesi Dergisi,* (10), 415-430.

Aydeniz, S. & Haydaroğlu, M. (2021). Dört temel dil becerisi alanında yapılan lisansüstü tezlerin bibliyometrik analizi. *Türkiye Eğitim Dergisi, 6* (1), 200-216.

Avcı, M. & Kurudayıoğlu, M. (2022). Türkçede iki dillilik çalışmalarının bibliyometrik analizi. *Ana Dili Eğitimi Dergisi, 10*(1).

Barton, D., Hamilton, M., ve IvaniÚc, R. (Eds.). (2000). *Situated Literacies* (pp. 7-15). London: Routledge.

Batur, Z. & Özcan, H. Z. (2020). Eleştirel düşünme üzerine yazılan lisansüstü tezlerinin bibliyometrik analizi. *Uluslararası Türkçe Edebiyat Kültür Eğitim (TEKE) Dergisi, 9* (2), 834-854.

Block, C. C., Oakar, M., & Hurt, N. (2002). The expertise of literacy teachers: A continuum from preschool to grade 5. *Reading research quarterly, 37*(2), 178-206.

Block, J. H., & Fisch, C. (2020). Eight tips and questions for your bibliographic study in business and management research. *Management Review Quarterly, 70*(3), 307-312.

Bozdoğan, A. E. (2020). "Planetaryum" Konusunda Yayınlanan Eğitim Araştırmaları Makalelerinin Web of Science Veri Tabanına Dayalı Bibliyometrik Değerlendirilmesi. *OPUS International Journal of Society Researches, 16* (27), 150-173. doi: 10.26466/opus.672517

Burul, C. (2018). *Öğretmenlerin eğitim programı tasarım yaklaşımı tercihlerinin öğretim programına bağlılıklarıyla olan ilişkisinin incelenmesi* (Master's thesis, Balıkesir Üniversitesi Sosyal Bilimler Enstitüsü).

Cazden, C., Cope, B., Fairclough, N., Gee, J., Kalantzis, M., Kress, G., & Nakata, M. (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review, 66*(1), 60-92.

Coşkun, Y. D., Cumaoğlu, G. K., & Seçkin, H. (2013). Bilgisayar öğretmen adaylarının bilişim alanıyla ilgili okuryazarlık kavramlarına yönelik görüşleri. *Internatioanal Journal of Human Sciences, 10*(1), 1259-1272.

Demir, E. & Çelik, M. (2020). Fen bilimleri öğretim programları alanındaki bilimsel çalışmaların bibliyometrik profili. *Türkiye Kimya Derneği Dergisi Kısım C: Kimya Eğitimi, 5* (2), 131-182.

Demir, H., & Selvi, S. (2018). *Sağlık alanında kaynak bağımlılığı yaklaşımı ile ilgili bilimsel yayınların bibliyometrik analizi.* 17. Uluslararası Katılımlı İşletmecilik Kongresi, 26-28 Nisan, (s. 1-14), İzmir Kâtip Çelebi Üniversitesi, İzmir.

Dölek, S. & Koç, A. (2022). Eğitsel oyunlar üzerine gerçekleştirilen bilimsel çalışmaların bibliyometrik analizi. *Journal of Sustainable Education Studies, 3* (3), 159-179.

Erdem, C., & Eğmir, E. (2018). Öğretmen adaylarının eğitim programı okuryazarlığı düzeyleri. *Afyon Kocatepe Üniversitesi Sosyal Bilimler Dergisi, 20*(2), 123-138. https://doi.org/10.32709/akusosbil.428727

Frankel, K. K., Becker, B. L. C., Rowe, M. W., & Pearson, P. D. (2016). From "What is Reading?" to What is Literacy? *Journal of Education, 196*(3), 7–17. https://doi.org/10.1177/002205741619600303

Gutiérrez-Salcedo, M., Martínez, M. Á., Moral-Munoz, J. A., Herrera-Viedma, E., & Cobo, M. J. (2018). Some bibliometric procedures for analyzing and evaluating research fields. *Applied intelligence,* 48, 1275-1287. https://link.springer.com /article/ 10.1007/ s 10 489 -017-1105-y

Gürkan, G., & Kahraman, S. (2021). Biyoteknoloji eğitimi alanındaki makalelerin web of science veri tabanına dayalı bibliyometrik analizi. *İnönü Üniversitesi Eğitim Fakültesi Dergisi, 22*(3), 2460-2483.

Güneş, F. (1994). Okur-yazarlık kavramı ve düzeyleri. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi, 27*(2). 499-507.

İnce, B. (2022). Analysis of international literature on bilingual and multilingual Turkish children by bibliometric analysis technique. *Sakarya University Journal of Education, 12* (1), 256-272. doi: 10.19126/suje.1082446

Karagöz, B. & Şeref, İ. (2020). Yazma becerisiyle ilgili makaleler üzerine bir inceleme: Web of Science Veri Tabanında Eğilimler. *Ana Dili Eğitimi Dergisi, 8* (1), 67-86.

Katz, I. R. (2007). ETS Research finds college students fall short in demonstrating ICT literacy. *Collegeand Research Librares News, 68*(1), 1-3. doi: 10.5860/crln.68.1.7737

Kurudayioğlu, M., & Tüzel, S. (2010). 21. yüzyıl okuryazarlık türleri, değişen metin algısı ve Türkçe eğitimi. *Türklük Bilimi Araştırmaları,* (28).

Köşker, H. (2020). Coğrafi işaret konusunda yazılmış lisansüstü tezlerin bibliyometrik analizi. *Journal of Humanities and Tourism Research, 10* (4), 775-787.

Li, K., Rollins, J. & Yan, E. (2018). Web of science use in published research and review papers 1997- 2017: A selective, dynamic, cross-domain, content-based analysis. *Scientometrics*, 115, 1-20. doi: 10.1007/s11192-017-2622-5

Marginson, S., (2022) What drives global science? The four competing narratives. *Studies in Higher Education, 47*(8), 1566-1584. doi: 10.1080/03075079.2021.1942822

Mete, G. (2020). Okuryazarlık türleri ve 2023 eğitim vizyonu belgesi. *Kesit Akademi Dergisi*, (22), 109-120. doi: 10.29228/kesit.40368

McBurney, M. K., & Novak, P. L. (2002, September). *What is bibliometrics and why should you care?* In Proceedings. IEEE international professional communication conference (pp. 108-114). IEEE

Nasırcı, H. (2022). *Sınıf öğretmenlerinin eğitim programı okuryazarlığı yeterliliklerinin incelenmesi.* Yayımlanmamış Doktora Tezi. Çukurova Üniversitesi Sosyal Bilimler Enstitüsü, Adana.

Ok, G. (2022). Bibliometric evaluation based on Web of Science database: nature and environmental education. *Journal for the Education of Gifted Young Scientists, 10*(3), 435-451. https://doi.org/10.17478/jegys.1141693

Özkaya, A. (2019). STEM eğitimi alanında yapılan yayınların bibliyometrik analizi. *Bartın University Journal of Faculty of Education, 8* (2), 590-628.

Özteke Kozan, H. İ. (2020). Okul psikolojik danışmanlığı ile ilgili yapılmış çalışmaların bibliyometrik analizi: 1980-2019. *Okul Psikolojik Danışmanlığı Dergisi, 3*(1), 1-28.

PISA Ulusal Raporu, (2015).https://odsgm.meb.gov.tr/test/analizler/docs/ PISA/PISA2015_Ulusal_Rapor.pdf. Accessed on 22.09.2022.

Rao, P. S. (2019). The role of English as a global language. *Research Journal of English, 4*(1), 65-79.

Saka, T. & İnaltekin, T. (2021). Araştırma-sorgulamaya dayalı öğretime yönelik akademik çalışmaların bibliyometrik analizi (2000-2020). *OPUS International Journal of Society Researches, 18* (40), 2408-2449.

Sabır, A. (2022). *İlkokul Sosyal Bilgiler dersi öğretim programında yer alan okuryazarlık becerilerine ilişkin sınıf öğretmenlerinin görüşlerinin belirlenmesi.* Yayımlanmamış Yüksek Lisans Tezi. Çanakkale 18 Mart Üniversitesi Lisansüstü Eğitim Enstitüsü, Çanakkale.

Sengupta, I. (1992). Bibliometrics, Informetrics, Scientometrics and Librametrics: An Overview. *Libri, 42*(2), 75-98. https://doi.org/10.1515/libr.1992.42.2.75

Seyran, F. & Gürhan, N. (2021). Eğitim kurumlarında öğrenciler arasında yaygınlaşan şiddet: okul zorbalığı üzerine bibliyometrik bir araştırma. *Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi, 22* (3), 1690-1723.

Sur, E. (2022). Okuryazarlık kavramı ve Türkiye'deki okuryazarlık araştırmaları üzerine bir inceleme. *Ahmet Keleşoğlu Eğitim Fakültesi Dergisi (AKEF) Dergisi, 4* (2), 445- 467. doi: 10.38151/akef.2022.27

Cin Şeker, Z. (2020). Ana Dili Eğitimi dergisi'nde yayınlanan makalelerin anahtar kelimeleri üzerine betimsel bir analiz. *Ana Dili Eğitimi Dergisi, 8*(3), 797-811. https://doi.org/10.16916/aded.718596

Şeref, İ. & Karagöz, B. (2019). Türkçe eğitimi akademik alanına ilişkin bir değerlendirme: web of science veri tabanına dayalı bibliyometrik inceleme. *Journal of Language Education and Research, 5* (2), 213-231. doi: 10.31464/jlere.578224

Soyuçok, M. (2022). Dinleme becerisi üzerine hazırlanan lisansüstü tez çalışmalarının bibliyometrik analizi. *Uluslararası Eğitim Bilim ve Teknoloji Dergisi, 8*(1), 66-80. doi: 10.47714/uebt.1079623

Sönmez, Ö. F. (2020). Bibliometric analysis of educational research articles published in the field of social study education based on web of science database. *Participatory Educational Research, 7*(2), 216-229. doi: 10.17275/per.20.30.7.2

PISA (2012). PISA 2012 Results: Students and Money: Financial Literacy Skills for the 21st Century (oecd.org). Accessed on 22.09.2022.

UNESCO, (2022). https://uis.unesco.org/node/3079547. Accessed on 22.09.2022.

Whitehurst, G. J., & Lonigan, C. (2001). Emergent literacy: Development from prereaders to readers. In S. Neuman & D. Dickinson (Eds.), *Handbook of Early Literacy Research* (pp. 11–30). New York: Guilford

Vygotsky, L. S., & Cole, M. (1978). *Mind in society: Development of higher psychological processes.* Harvard University Press.

Yeşiltaş, E. & Akcan, C. (2022). Sosyal Bilgiler eğitiminde proje tabanlı öğrenme ile ilgili araştırmalara yönelik bibliyometrik bir analiz. *Sivas Cumhuriyet Üniversitesi Eğitim Bilimleri Enstitüsü Dergisi, 1*(1), 39-49.

Yeşiltaş, E. & Evci, N. (2021). Eğitimde bilgisayar okuryazarlığı çalışmalarının bibliyometrik bir analizi. *Gazi Eğitim Bilimleri Dergisi, 7*(3), 223-242

Yeşiltaş, E. & Şeker, G. (2021). Sosyal medya ile ilgili yapılan eğitim araştırmalarının bibliyometrik analizi. *Journal of World of Turks/Zeitschrift für die Welt der Türken, 13*(2). doi: 10.46291/ZfWT/130209

Yeşiltaş, E. &Yılmazer, A. (2021). Eğitimde medya okuryazarlığı ile ilgili araştırmalara yönelik bibliyometrik bir analiz. *OPUS International Journal of Society Researches, Eğitim Bilimleri Özel Sayısı*, 4903-4929.

Yıldırım, A., & Şimşek, H. (2018). *Sosyal bilimlerde nitel araştırma yöntemleri.* Ankara: Seçkin.

Yurdakul, M. & Bozdoğan, A. E. (2022). Web of Science veri tabanına dayalı bibliyometrik değerlendirme: Fen eğitimi üzerine yapılan makaleler. *Türkiye Bilimsel Araştırmalar Dergisi, 7* (1), 72-92.