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BIBLIOMETRIC ANALYSIS OF THE EUROPEAN EARLY CHILDHOOD EDUCATION RESEARCH JOURNAL

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Abstract
This study aimed to conduct a bibliometric analysis of the European Early Childhood Education Research Journal and determine the journal's scientific development, intellectual development and scientific focus. For this purpose, by including all publications since the journal started to be indexed on Web of Science (2007-2018) in the scope of the analysis, bibliometric analyses were carried out on 494 scientific articles published on the database of WoS. The studies were examined with the Citespace II software based on country collaborations, co-citation analysis and co-word analysis, and citation bursts were observed for countries and works that had a critical significance in the journal in terms of citation numbers. According to the findings, it was understood that there were mostly articles with one or two authors in the journal. England, Australia and Norway were the countries of the authors who made the highest contribution to the journal in the scientific sense. In the journal, it was observed that studies carried out by authors from the England, Greece and New Zealand received high numbers of citations on certain occasions. The concepts that were mentioned the most frequently in the studies were "preschool", "play", "education" and "children".

Keywords: European Early Childhood Educational Research Journal, bibliometric analysis, cocitation analysis; social network analysis.

INTRODUCTION

The philosophical roots of early childhood education are based on theories on the developmental history of children, qualified teachers, qualified education programs, rich education environments and the families of children. These theories that reveal the development and education of children are updated in time by being reviewed by researchers (Brewer 2007; Jackman 2012). Comparisons between the past and present of the field-related scientific knowledge allow emergence of analytical and realistic approaches regarding the future (Turan, Karadag, Bektas, and Yalcin 2014). Accordingly, Khodabandelou, Mehran, and Nimehchisalem (2018) determined a stable growth in studies in the field of early childhood education carried out by development scientists, educators, psychologists and economists in parallel to studies conducted in relation to education and other fields of science related to education. This increase in the number of studies has made it necessary to examine the epistemology and/or informational structure of the field. For this purpose, bibliometric investigation of the contents of studies in journals where qualified research accepted in its field is published has become one of the current methods of research.

Scientific studies that are carried out not only within the scope of a single field of science but also in collaboration with other scientific fields are rapidly advancing and changing through the years. In this process of change, the bibliometric research method may be used to determine a field of discipline's or a journal's growth dynamics, intellectual structure, knowledge fields, research theme, methodology, geographical areas of publication and topics (Tsay, Jou, and Ma 2000; Agarwal et al. 2016). Bibliometric studies allow presentation of the change, development and characteristic properties of a field of discipline or a journal by using mathematical and statistical methods (Pritchard 1969; Diodato 1994; Mamdapur, Govanakoppa, and Rajgoli 2011). This way, by making it possible to understand the general structure of a field of discipline and definition of the concepts and trends in the field, they help researchers gain a general perspective on the studies in the field and trending topics (Wallace,

1989; Egghe, and Rousseau 1990; Kasemodel, Makishi, Souza, and Silva 2016). Bibliometric studies may be classified under evaluative or relational categories. Evaluative techniques consist of productivity measurements (publication, author, organization and country-related productivity), impact measurements (rating of journals, and document, author, journal citation analyses) and hybrid metrics embodying both productivity and impact measurements (Hall 2011; Koseoglu 2016). On the other hand, relational techniques discover the relationships in studies such as the structure of the research fields, new research themes and techniques. Word analysis, co-authorship analysis and co-citation analysis are the most widely used visual techniques to reveal relationships (Benckendorff, and Zehrer 2013). Analysis of academic journals, which are a significant communication channel for researchers, by using evaluative and relational methods may act as a window where a certain field of discipline may be observed (Xiao, and Smith 2006). For this reason, the main point of focus for bibliometric studies may be accepted as academic journals (Hall 2011). With bibliometric analyses on journals, verifiable and specific results may be obtained regarding the evolution of a discipline (Ma, and Law, 2009).

In the light of this point, it was aimed to conduct a bibliometric analysis of 494 studies published in the European Early Childhood Education Research Journal between 2007 and 2018. With the bibliometric analysis, an effort was made to determine the scientific development of the journal and reveal its contributions on the intellectual structure of the discipline of early childhood education.

The study sought answers to the two following main questions

(1) What kind of distribution do studies published in the European Early Childhood Education Research Journal show in terms of the numbers-types of publications on a yearly basis, the number of citations and the collaboration and productivity of authors-institutions-countries?

(2) What are the concept-topic trends of studies published in the European Early Childhood Education Research Journal?

LITERATURE REVIEW

European Early Childhood Education Research Journal

The European Early Childhood Education Research Journal, published by Taylor & Francis, became operational in the year 1993. The journal is also a publication of the European Early Childhood Education Research Association (EECERA). As the main focus point of the journal, articles regarding birth through eight years of age on early childhood in the fields of psychology, sociology, pediatric health and social services are published. The journal is published in the form of six issues per year. The European Early Childhood Education Research Journal is included in the indices of the Australian Research Council, Ranked Journal List; British Education Index; EBSCO; Educational Research Abstracts Online; Education Resources Information Center; ERIH (European Reference Index for the Humanities, Pedagogical and Educational Research); National Children's Bureau; ProQuest; SCOPUS®, and the Social Sciences Citation Index (As of August, 15, 2019, Taylor & Francis Online 2019).

According to data from the Journal Citation Reports for 2017 published by Taylor & Francis Web of Science, the journal ranks 161st among 239 journals published in the field of Education & Educational Research. When the journals are divided into four quarters (Q1–Q2–Q3–Q4) in accordance with the impact factor in the research field categories, it falls under Q3. The impact factor of the journal in 2017 was 1.090, and its five-year impact factor was 1.322 (Thompson Reuters Journal Citation Reports 2017). According to the 2018 data, it is ranked as the 156th among 243 journals in the field of Education & Educational Research. Moreover, the 2018 impact factor value of the journal was reported as 1.215 (As of August, 15, 2019, Taylor & Francis Online 2019). The impact factor is calculated by dividing the total number of citations received in 2016 for the studies published in 2014 and 2015 by the total number of publications in the same two-year period (Garfield, 1972).

Why is the bibliometric analysis of the European Early Childhood Education Research Journal important?

Since the second half of the twentieth century, studies carried out with advanced technological instruments have revealed the significance of the early childhood period more and more, and they have led to the prevalence of research in this field. This situation had increased the necessity for qualified journals specific to the field that would publish the reports of studies on early childhood education, and bibliometric examinations have become a necessity to determine the main points of studies that are published in such journals. Considering the scientific journals reflect the variety and popularity of research topics in a certain time interval (Shen et al. 2014), bibliometric analysis of studies in a certain journal for a certain determined time interval allows obtaining valuable results (Egghe, and Rousseau, 1990; Daim, Rueda, Martin, and Gerdsri 2006). Accordingly, examination of qualified journals that are published in the field of early childhood education with bibliometric studies may guide future studies by allowing summarization of the published work and a better understanding of the informational structure of the field by researchers. In relation to this issue, considering the literature, it was seen that there is a limited number of studies where bibliometric methods were used for analysis in the field of early childhood education. Among the existing studies, it was observed in general that the bibliometric characteristics of studies on one selected topic published in a selected time interval were examined (Ling, and Potmesil 2017; Khodabandelou et al. 2018; Tran et al. 2018; Wu 2018). Furthermore, it was determined that no academic journal regarding the field of early childhood education has been examined with a bibliometric methodology.

At this point, the European Early Childhood Education Research Journal which is rising and growing is an important source that may be subjected to bibliometric analysis as it is one of the main indexed journals that contribute to the development of the literature by publication of qualified studies in the field of early childhood education. The findings to be obtained from the bibliographic analysis of the journal will provide a general outlook into the informational structure of the journal and studies on early childhood education. Additionally, the fact that no study focusing on certain journals regarding early childhood education research was encountered and that the European Early Childhood Education Research Journal was not subjected to bibliographic analysis before, were especially important in selecting the journal as the topic of research in this study. In this study, the European Early Childhood Education Research Journal was subjected to evaluative and relational bibliometric analyses. It is an important factor that shows the uniqueness of the study that the journal has not been a subject of bibliometric studies so far.

METHOD

This study aimed to conduct a bibliometric analysis of the European Early Childhood Education Research Journal and determine the journal's scientific development, intellectual structure and scientific focus. In this context, scientific studies published in the journal and indexed on the database of Web of Science were examined based on their bibliometric characteristics. As a result of searching the WoS database, a total of 561 scientific studies that were published in the journal in the period of 2007-2018 were accessed. As the study aimed to describe all characteristics of an existing situation, it is a study with a screening model. Screening models are a research approach that aims to describe a situation that existed in the past or still exists as it is (Karasar 2007). As the academic studies published in the period of 2007-2018 in the European Early Childhood Education Research Journal were descriptively examined, this study was a cross-sectional study among screening models (Buyukozturk et al. 2017).

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Data Collection Process

In the study, to access the scientific studies (research data) published in the European Early Childhood Education Research Journal, a search was carried out on the Web of Science Core Collection database. As a result of the search, 561 scientific studies published in the journal in the period of 2007-2018 and the bibliometric properties of these studies (year of publication, publication type, publications' title-abstract-keywords and bibliographies, author names, countries of authors and institutions of authors, number of citations received from sources indexed on Web of Science) were accessed.

Inclusion and Exclusion Criteria

In the study, the types of studies as editorial materials (n=59), proceedings papers (n=13), book reviews (n=3), corrections (n=3) and reviews (n=2) were excluded from the analysis, while no restriction was placed based on years. All publications since the date of the journal's first indexing on Web of Science (2007-2018) were included in the study. In this scope, the analyses were carried out on 494 scientific articles that were published in the journal in the period of 2007-2018. Chart 1 shows the distribution of the 494 articles based on periods.

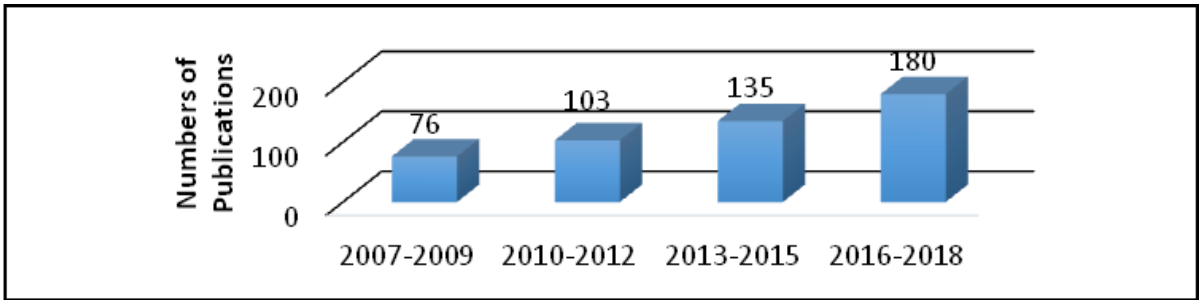

Chart 1. Distribution of Publications Based on Periods

It was observed that the number of publications increased in all periods. The highest number of articles was published in 2016 (n=61) and in the time interval of 2016-2018 by 36% (n=180). Among the publications, 27% (n=135) were published in the period of 2013-2015, 21% (n=103) were published in the period of 2010-2012, and 15% (n=76) were published in the period of 2007-2009.

Data Analysis

Potter (1988) divided bibliometric studies into two categories. The first category consists of descriptive studies that aim to examine a body of literature by listing contributing countries, authors, years of publication and discipline, while the second category consists of studies that aim to examine the usage of a literature by using citation analyses which are more evaluative (Osareh 1996). In line with the view of Potter (1988), this study firstly examined the journal's citation, co-authorship status and author productivities based on the citation and author information in the WoS database. After this, the bibliometric data of the studies were recorded in the "plain text" format from the WoS database. The data file to be analyzed was made ready for the Citespace II software where the bibliometric analysis would be carried out and introduced to the program. Citespace II is a Java application that is used to visualize and analyze trends and models in the scientific literature (Chen 2006). With Citespace II, country collaboration, co-citation and co-word analyses were carried out, and citation bursts were determined for the countries and studies in the journal that carried importance in terms of citation numbers. Additionally, clusters of topics formed by the articles published in the journal were also determined. The clusters and networks that emerged in this context were visualized. Citespace II has critical significance in determining the intellectual turning points of a scientific field, area of study, journal or concept.

FINDINGS

Author Collaborations and Productivities

The articles that were published in the journal were examined based on their authorship status. It was seen that most of the studies in the journal had one or two authors. According to the results, 37.85% of the articles in the journal (n=187) had one author each, while 29.55% had two authors each. In the article, the study published in 2007 by Kutnick et al. titled "The role and practice of interpersonal relationships in European early education settings: sites for enhancing social inclusion, personal growth and learning?" constituted the largest collaboration with 17 authors.

The total of 494 articles in the journal was written by 1110 authors. 895 unique authors contributed to the journal. The authors who contributed to the journal with one article each were in the majority by 82.79% (n=741). 121 authors contributed to the journal with two articles each and constituted a contribution rate of 13.52%. The author named Michel Vandenbroeck provided the highest contribution to the journal with 10 publications. This researcher was followed by Anette Sandberg and Bert van Oers each of whom got seven articles published.

Table 1: Author Collaborations and Productivities

Collaborations			**Productivities**		
Co-authorship	**Frequency (n)**	**Percentage (%)**	**Number of Publications**	**Frequency (n)**	**Percentage (%)**
1	187	37.85	1	741	82.79
2	146	29.55	2	121	13.52
3	87	17.61	3	20	2.23
4	43	8.70	4	8	0.89
5	11	2.23	5	1	0.11
6	11	2.23	6	1	0.11
7	5	1.01	7	2	0.22
More than 7	4	0.81	More than 7	1	0.11
TOTAL	**494**	**100**	**TOTAL**	**895**	**100**

Citation Analysis

In the time period where the study was carried out, 2994 citations were made by studies indexed in the Web of Science database for the 494 articles published in the journal in the period of 2007-2018. Accordingly, the mean number of citations per article was 6.06. Citation numbers increased each year, while the highest number was reached as 594 in the year 2018.

Table 2: Numbers of Publications Based on Numbers of Citations

Citation Interval	**Numbers of Publications**	**Percentage (%)**
0	119	24.09
1-20	343	69.43
21-40	23	4.66
41-60	2	0.40
61-80	4	0.81
81-100	1	0.20
Over 100	2	0.40
TOTAL	**494**	**100**

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Considering the citations received based on publication numbers, 24.09% of the articles received no citations, while 343 studies constituted a ratio of 69.43% by numbers of citations in the range of 1-20. There were 2 studies in the journal with a number of citations over 100. In the period where our study was carried out, the study in the journal with the highest number of citations was carried out in 2007 by Jóhanna Einarsdóttir with the title *Research with children: methodological and ethical challenges*. According to the results of the citation analysis, there were 24 publications in the journal with at least 24 citations each, which indicated that the h-index of the journal was 24.

Country Collaborations

With the purpose of determining the countries where the authors who contributed to the European Early Childhood Education Research Journal the most were from, a network analysis was carried out. The network obtained as a result of the analysis consisted of 28 nodes (countries) and 48 connections (inter-country relationships). The network density was 0.127, the Q modularity value was 0.40, and the mean silhouette value was 0.23. Network modularity takes a value ranging between 0 and 1, and this value measures how much of the network can be divided into multiple components or modules. While a modularity value close to 1 represents a well-structured network, values under 0.30 indicate that the clusters do not form a meaningful division (Chen 2016). The mean silhouette value varies in the range of -1 to 1 (Chen 2016), it is used for determining the optimal number of clustering, and values closer to 1 indicate more consistent and similar actors in the network (Li, Ma, and Qu 2017). The 10 most productive countries in the network are shown in Table 3 based on their frequency values. Additionally, the 10 countries with the highest degrees of centrality are also shown in Table 3. Centrality is a measure that allows scoring the actors in the network and making a comparison (Ataman, and Celik 2018). The network shows the countries with frequency values of 2 or higher, while the purple circles represent the countries with the highest centrality values.

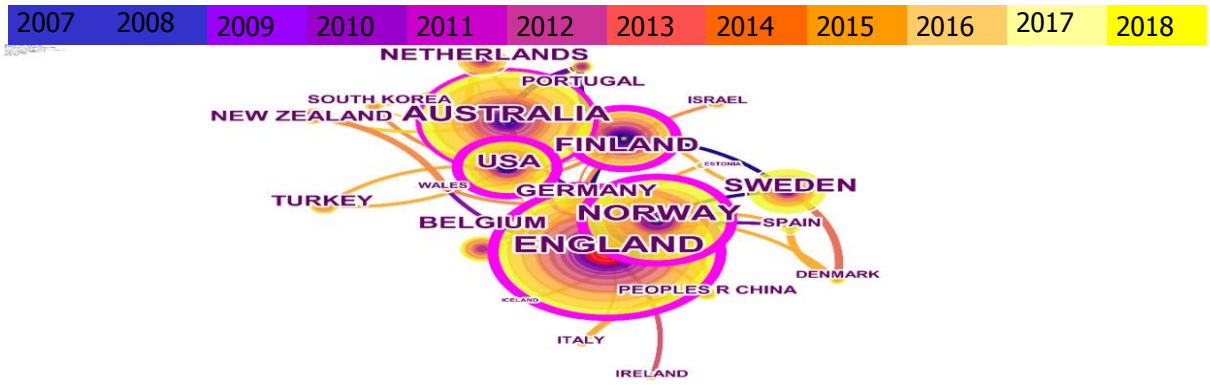

Figure 1: Country Collaborations

When the countries were examined based on the numbers of studies that they published in the European Early Childhood Education Research Journal, the most productive countries were found to be England with 74 studies, Australia with 61 studies and Norway with 49 studies. While determining the productivities of the countries, in the case that there were multiple authors from the same country for a single article, the country was counted only once.

Table 3: Frequency Values and Centrality Levels of Countries

Citation counts	Countries	Centrality	Countries
74	THE UNITED KINGDOM	0.34	NORWAY
61	AUSTRALIA	0.33	THE UNITED KINGDOM
49	NORWAY	0.22	USA

36	FINLAND	0.21	FINLAND
32	USA	0.16	GERMANY
29	SWEDEN	0.12	AUSTRALIA
20	NETHERLANDS	0.05	WALES
19	GERMANY	0.03	PEOPLES R CHINA
17	BELGIUM	0.02	SWEDEN
14	NEW ZEALAND	0.01	NETHERLANDS

When the countries were examined based on their levels of centrality, the most central countries in the network were found as Norway (0.34) and England (0.33). According to these results, England, Australia and Norway were the countries authors from were made the most contribution to the European Early Childhood Education Research Journal in the scientific sense. It may be stated that these countries played a significant role in achievement of scientific communication and acted as bridges.

Table 4: Citation Burst Values of Countries

Countries	Strength	Beginning	End	2007-2018
THE UNITED KINGDOM	2.85	2007	2009	
GREECE	2.82	2012	2014	
NEW ZEALAND	2.76	2008	2012	

The distribution of citation bursts among countries was examined based on the numbers of citations received by the scientific articles in the journal, and citation bursts were determined for 3 countries. Citation burst determines whether or not a certain author, country or study leads to statistically significant fluctuations in terms of citation numbers in a certain time interval (Chen, Ibekwe - SanJuan and, Hou 2010). Accordingly, it was observed that studies in the journal published by authors from England, Greece and New Zealand had high numbers of citations in certain time intervals.

Publication Co-Citation Network

With the purpose of sources of reference that received the highest numbers of citations from the articles published in the European Early Childhood Education Research Journal, a network analysis was carried out based on the bibliographies of the studies in the dataset. As a result of the analysis, it was seen that the total of 494 articles published in the journal provided citations for a total of 16896 studies. The co-citation network consisted of 326 nodes (cited publications) and 769 connections, while it was divided into 49 clusters. The density of the network was calculated as 0.014. The Q modularity value was 0.86, and the mean silhouette value was 0.40. While the colorings in the network represent distributions based on years, red circles refer to citation bursts, and purple circles show centrality levels. The reference sources included on the network had citation frequency values of 10 or more, and they are shown with black coloring. Clustering of topics based on references is shown by #red coloring. Table 5 shows the 10 sources with the highest frequency values in the network.

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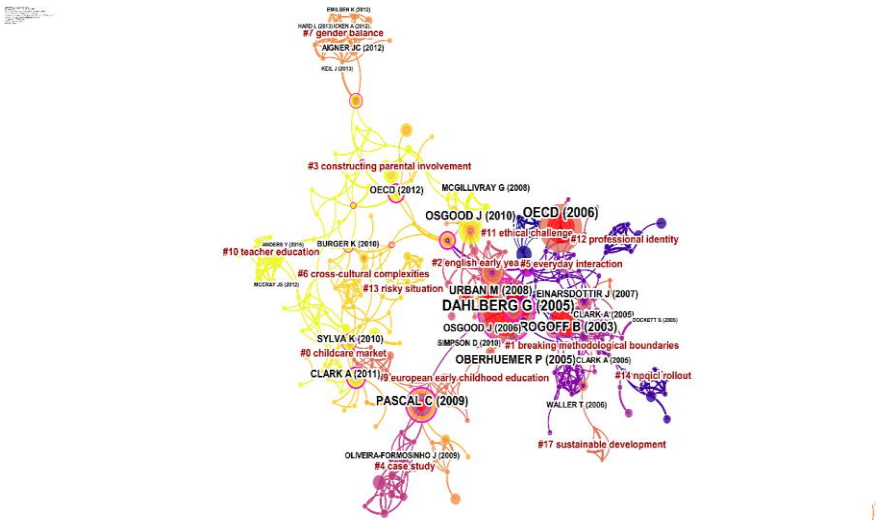

Figure 2: Publication Co-Citation Networ

The publication that was cited the most by the articles in the journal was the book published in 2005 by Gunilla Dahlberg and Peter Moss with the title "*Ethics and Politics in Early Childhood Education (Contesting Early Childhood)"* (n=22). This book was under the topic cluster #11: ethical challenge. The 10 publications with high numbers of citations were found to have publication dates after the year 2000. Additionally, the 10 publications with the highest numbers of citations were usually in the cluster #2: English early year. Accordingly, it may be stated that the articles published in the journal were rather focused on the topics of ethical challenge and English early year.

Table 5: Frequency Values of Reference Sources

CC	References	Year	First Author	Cluster #
22	Ethics and Politics in Early Childhood Education (Contesting Early Childhood)	2005	Gunilla Dahlberg	11
17	Starting Strong II: Early Childhood Education and Care	2006	OECD	5
13	The Cultural Nature of Human Development	2003	Barbara Rogoff	1
12	Listening to young citizens: the struggle to make real a participatory paradigm in research with young children	2009	Christine Pascal	4
10	Conceptualising the early childhood pedagogue: Policy approaches and issues of professionalism	2005	Pamela Oberhuemer	2
10	Dealing with uncertainty: challenges and possibilities for the early childhood profession	2008	Mathias Urban	2
10	Reconstructing professionalism in ECEC: the case for the 'critically reflective emotional professional'	2010	Jayne Osgood	2
9	Pedagogy, knowledge and collaboration: towards a ground - up perspective on professionalism	2008	Carmen Dalli	2
7	Deconstructing Professionalism in Early Childhood Education: Resisting the Regulatory Gaze	2006	Jayne Osgood	2
7	Listening to Young Children: The Mosaic approach	2011	Alison Clark	0

Note: CC (Citation Counts)

Table 6: Citation Burst Values of Reference Sources

First Author & References	Strength	Beginning	End	2007-2013
Gunilla Dahlberg (2005), Ethics and Politics in Early Childhood Education (Contesting Early Childhood)	5.85	2007	2013	
Barbara Rogoff (2003), The Cultural Nature of Human Development	5.69	2007	2011	
OECD (2006), Starting Strong II: Early Childhood Education and Care	4.78	2009	2014	
Christine Pascal (2009), Listening to young citizens: the struggle to make real a participatory paradigm in research with young children	3.98	2011	2012	
Pamela Oberhuemer (2005), Conceptualising the early childhood pedagogue: Policy approaches and issues of professionalism	3.96	2008	2010	
Mathias Urban (2008), Dealing with uncertainty: challenges and possibilities for the early childhood profession	3.69	2013	2014	
Peter Moss (2008) The democratic and reflective professional: rethinking and reforming the early years workforce, in Professionalism in the Early Years,	3.04	2013	2014	
Peter Moss (2007), Bringing politics into the nursery: early childhood education as a democratic practice	3.03	2009	2010	
Alison Clark (2005) Listening to and involving young children: a review of research and practice	2.80	2011	2012	

When the publications were examined based on their citation burst values, bursts were determined in a total of 9 publications. The publication with the highest citation burst value was the book published in 2005 by Gunilla Dahlberg and Peter Moss with the title "*Ethics and Politics in Early Childhood Education (Contesting Early Childhood)*"(5.85). This publication was frequently cited by studies published in the journal in the period of 2007-2013, and considering that this publication was under the topic cluster #11: ethical challenge, it may be stated that the articles published in the journal in the period of 2007-2013 were focused on this topic.

Table 7: Topic Clusters Frequently Covering the Studies Published in the Journal

Cluster	Size	Silhouette	Label (TFIDF)	Label (LLR)	Mean (Cited Year)
0	36	0.835	young	childcare market (455.28, 1.0E-4)	2012

1	30	0.882	children	breaking methodological boundaries (274.21, 1.0E-4)	2006
2	28	0.957	early childhood education	English early year (473.81, 1.0E-4)	2008
3	27	0.845	care	constructing parental involvement (272, 1.0E-4)	2012
4	21	0.982	children	case study (460.05, 1.0E-4)	2008
5	20	0.889	early childhood education	everyday interaction (347.57, 1.0E-4)	2006

By taking the topics of the publications cited by the studies in the journal as a basis, the most frequently studied topics in the journal were determined. Based on the results of the analysis, the 6 topics with the highest numbers of citations are shown in Table 7. The top 2 most frequently studied topics in the journal were childcare market (455.28, 1.0E-4) and breaking methodological boundaries (274.21, 1.0E-4). Looking at the silhouette values of the clusters, a homogeneous structure may be considered. Based on the average years of citations of the topics, the topics childcare market (2012) and constructing parental involvement (2012) were among the current ones in the journal.

Word Analysis

As a result of the network analysis that was carried out by taking the abstracts and keywords of studies with the purpose of determining the frequently used words in the journal, a network with 184 nodes (words) and 770 connections was obtained. The network density was measured as 0.0457, while the Q modularity value was 0.41, and the mean silhouette value was 0.31. The network consisted of 16 separate clusters.

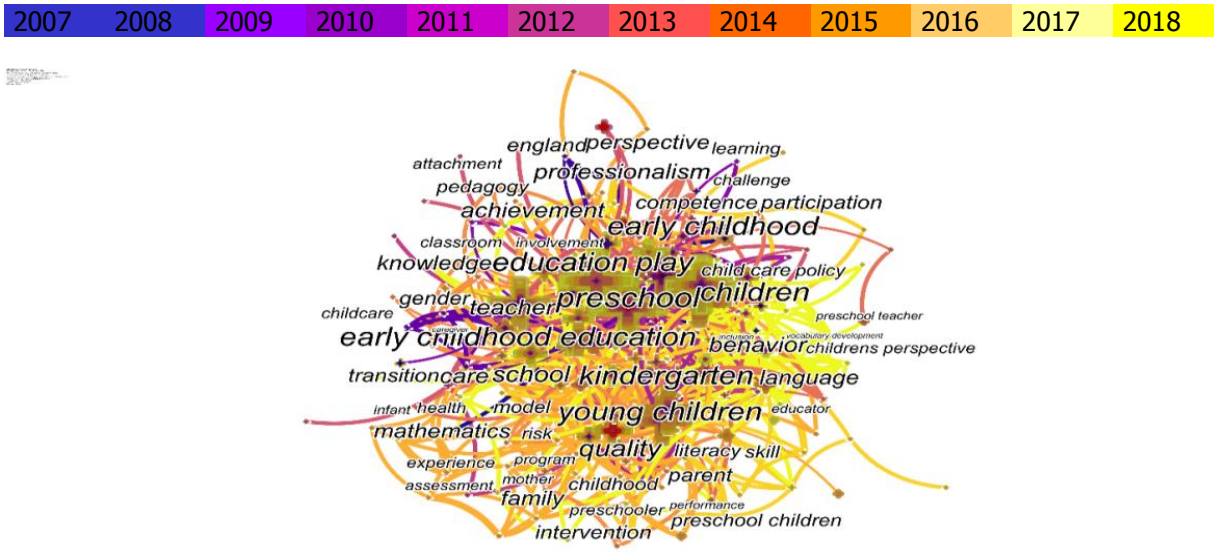

Figure 3: Word Analysis

According to the results of the analysis, the 20 words with the highest frequencies of usage are shown in Table 6. Accordingly, the concepts that were the most frequently mentioned in the studies in the journal were preschool (n=53), play (n=47), education (n=46) and children (n=45).

Table 8. Co-Word Analysis

Keywords	Count	Keywords	Centrality
preschool	53	early childhood education	0.16
play	47	model	0.14
education	46	children	0.13
children	45	childhood	0.12
early childhood	45	behavior	0.11
early childhood education	43	childcare	0.11
young children	42	young children	0.10
kindergarten	41	school	0.10
quality	28	play	0.09
school	25	preschool	0.08
behavior	21	education	0.08
teacher	21	teacher	0.08
care	20	competence	0.08
professionalism	20	literacy	0.07
achievement	19	care	0.06
language	18	professionalism	0.06
perspective	17	involvement	0.06
knowledge	16	quality	0.05
mathematics	16	language	0.05
family	15	mathematics	0.05

Looking at the centrality levels of the concepts, the concepts with the highest centrality values were early childhood education (0.16), model (0.14), children (0.14) and childhood (0.12). In this context, it may be stated that these concepts had a key role in studies published in the journal, and these were the key concepts of the journal.

DISCUSSION - CONCLUSIONS

Bibliometric studies provide researchers with field-specific information by revealing the existing state of a scientific field or a journal regarding a scientific field (Hall 2011; Agarwal et al. 2016). By assessment of results revealed with bibliometric analyses, precautions towards increasing the quality of publications may be taken. With this point of view, conducting a bibliometric analysis of studies in the field of early childhood education formed the starting point of the study. This study aimed to use the bibliometric analysis method to present the informational structure of studies published in the European Early Childhood Education Research Journal which has been publishing since 1993 in the field of Education & Educational Research and is on the level of Q3 based on its impact factor value (Thompson Reuters Journal Citation Reports 2017). As all publications since the first data on which the journal started to be indexed on Web of Science were included, the bibliometric analyses were carried out on 494 scientific articles published in the period of 2007-2018. Accordingly, considering the distribution of the publications by yearly intervals, the number of publications increased each period, and the highest number of articles was published in the period of 2016-2018.

There were mostly studies published by one or two authors in the journal. The total of 494 articles in the journal was written by 1110 authors. 895 unique authors contributed to the journal. The authors who contributed to the journal with one article each were in the majority, while the author named Michel Vandenbroeck provided the highest contribution to the journal with 10 publications. This researcher was followed by Anette Sandberg and Bert van Oers each of whom got seven articles published. Ciftci et al. (2016), in their study titled Map of Scientific Publication in the field of Educational Sciences and Teacher Education in Turkey: A Bibliometric Study, examined 7681 articles in 32 different journals. They determined that most of the studies had 1 or 2 authors, and 7,229 unique authors contributed to the journals.

According to another finding of the study, the 494 articles were cited 2994 times by studies indexed on WoS, and the number of citations per article was calculated as 6.06. The highest number of citations was found to be 594 in the year 2018. The study which received the highest number of citations in the period of 2007-2018 in the journal was published in 2007 by Jóhanna Einarsdóttir with the title *Research with children: methodological and ethical challenges* and had 128 citations. There were also 2 studies with more than 100 citations each, while there were 24 studies with at least 24 citations each, which showed an h-index value of 24 for the journal. According to data from Thompson Reuters Journal Citation Reports (2017) the journal ranked the 161st among 239 journals in the field of Education & Education Research.

Within the scope of the objectives of the study, a network analysis was carried out to determine the countries of the authors who contributed the most to the European Early Childhood Education Research Journal in the scientific sense. The network that was obtained had 28 nodes (countries) and 48 connections (inter-country relationships). According to the frequency values, the countries with the highest numbers of publications in the European Early Childhood Education Research Journal were found to be the England, Australia and Norway. Additionally, Norway and the England were the highest in terms of centrality. In a general perspective, European countries and Australia had the highest contribution for the European Early Childhood Education Research Journal. Khodabandelou et al. (2018) examined 6,730 studies on early childhood education that were indexed on Web of Science in the period of 2000-2016 with the purpose of determining the 21st century trends in the field. As a result of their study, among the 6,730 studies, researchers from the United States were found to be the most active ones in terms of collaboration with other authors, and they mostly worked with Chinese, English and Australian researchers. Researchers employed at universities in the United States were also found to be the most productive ones.

The intellectual foundations of a discipline are revealed to a great extent in the citations researchers make in their articles. References that are included in articles on a certain field of research in a certain period of time show the intellectual structure in which the field of discipline is developing by constituting the current literature (Sa´ez et al. 1999; as quated in: Ramos - Rodríguez, and Ruíz - Navarro 2004). According to the citation burst scores of the scientific articles in the journal, it was seen that studies carried out by authors from the England, Greece and New Zealand had significantly high citation numbers in certain periods of time. Accordingly, it may be stated that the studies conducted by academics of these countries received more attention and citations. Additionally, with the purpose of determining the studies that received the highest numbers of citations from the articles published in the European Early Childhood Education Research Journal, a network analysis was carried out based on the bibliographies of the studies in the dataset. According to this analysis, the 494 articles in the dataset provided citations to a total of 16896 publications. The publication that was cited the most by the articles in the journal was the book published in 2005 by Gunilla Dahlberg and Peter Moss with the title "*Ethics and Politics in Early Childhood Education (Contesting Early Childhood)*." Prevalent usage of this source also based on the burst values among sources of citation in the studies published in the journal in the period of 2007-2013 may show that studies published in

this time period included theories and debates regarding ethics and political opinions in early childhood education. The source that was cited the second most by the studies in the journal was the book published in 2006 by the OECD with the title "Starting Strong II: Early Childhood Education and Care." It may be stated that the content of the book corresponded to the subject matter that was the most frequently studied in the articles in the journal published in the aforementioned period. Additionally, in the clustering process that was carried out based on the topics of the sources cited by the studies published in the journal, the most frequently studied topics were found as "childcare market" and "breaking methodological boundaries". These topics may be stated to have formed the current topics of the articles that were published in the journal.

In the word analysis that was carried out to determine the words that were frequently used by the studies published in the journal, it was determined that the most frequently mentioned concepts were preschool, play, education and children. The concepts with the highest levels of centrality were found as early childhood education, model, children and childhood. A high centrality value indicates that the terms in question played a significant role in the research (Jiang, Ritchie, and Benckendorff 2017). According to these results, in parallel with the name and publication criteria of the journal, it may be seen that studies on early childhood education were published in the journal. Moreover, the finding in the analysis that the concepts of play, literacy, teacher, care, language, mathematics and quality had high centrality values showed that these topics were the current topics in the field of early childhood education, and they were in the phase of development and maturation. Similarly, Khodabandelou et al. (2018) determined in their analysis of the keywords of 6,730 studies indexed on Web of Science for the period of 2000-2016 that the words "preschool", "obesity", "epidemiology", "early intervention", "teacher education", "child development", "gender", "special education", "family", "play" and "autism" were frequently used. Generally speaking, it may be seen that the words that were determined to be frequently used in their study were similar to those in this study. Based on these findings, conduction of studies with qualitative and mixed-design models by researchers by focusing on different topics regarding early childhood education may help elimination of the existing gaps in the literature. This situation may increase the awareness of politicians working on education regarding various topics.

While interpreting the results of the bibliometric analysis on the 494 articles that were published in the European Early Childhood Education Research Journal in the period of 2007-2018, it should be kept in mind that no comments are made regarding the quality of these articles in the results, and only a general look at the intellectual structure of the journal is provided. Furthermore, the results of the analysis summarize the tendencies of studies on early childhood education and the general state of affairs. The fact that the European Early Childhood Education Research Journal is a topic of a bibliometric study for the first time shows the originality of this study. The study was limited to the articles that were indexed on Web of Science Core Collection in the years 2007-2018. Considering that the journal started publication in 1993, studies conducted in different years or more studies may be analyzed regarding bibliometric properties, and results may be compared. The change in the quality of the articles that are published in the journal through the years may be examined.

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