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A Content Analysis of Articles in the Turkish Early Childhood Education Context

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Abstract: The aim of this study was to examine articles from the field of early childhood education published in Turkish academic journals. Descriptive and methodological characteristics of the articles were scrutinized along with investigation and categorization of their research topics. 822 articles from 62 journals, published between 2008 and 2018 were examined via content analysis. Findings showed that almost half the articles were designed as quantitative studies (n = 407). In complement, the three most common research methods were identified as surveys, (n = 123), experimental studies (n = 102), and correlational studies (n = 96). Accordingly, the most widespread choice of sample group was children (35.6%). Additionally, 43.5% of the articles did not clarify their sampling methods. Furthermore, the most studied research topics included educational subjects (n = 424). Amongst the sub-categories of educational research, special education, and inclusion were the most prevalent at a rate of 10.1%.

Keywords: Articles, Content Analysis, Early Childhood Education, Turkish Academic Journals

Türk Akademik Dergilerde Yayınlanan Okul Öncesi Eğitimi İle İlgili Makalelerin İçerik Analizi

Öz: Bu çalışmanın amacı erken çocukluk eğitimi alanında Türk akademik dergilerde yayınlanmış olan makaleleri incelemektir. Çalışma kapsamında makalelerin tanımlayıcı özellikleri, araştırma konuları ve yöntemsel özellikleri incelenmiş ve sınıflandırılmıştır. 62 dergide 2008–2018 yılları arasında yayınlanmış 822 makale, içerik analizi yöntemi kullanılarak incelenmiştir. Bu araştırma sonucunda ulaşılan bulgular, incelenen makalelerin yarısına yakınının (n = 407) nicel çalışma olarak tasarlandığını göstermiştir. Bu sonuç ile paralel olarak, makaleler arasında en çok kullanılan ilk üç araştırma yönteminin ise tarama çalışmaları (n = 123), deneysel çalışmalar (n = 102) ve korelasyon çalışmaları (n = 96) olduğu görülmüştür. Bu bulguların yanı sıra, makalelerin %43.5'inin örneklem seçim yöntemlerini belirtmedikleri gözlemlenmiştir. Ek olarak, araştırmanın bulguları makaleler arasında en çok çalışılan konuların eğitim kategorisi altında toplananlar olduğunu göstermiştir (n = 424). Eğitim kategorisi içinde yer alan alt kategoriler içinde en çok yayın yapılan konunun ise %10.1'lik bir oran ile özel eğitim ve kaynaştırma olduğu gözlemlenmiştir.

Anahtar Sözcükler: Makale, İçerik Analizi, Okul Öncesi Eğitimi, Türk Akademik Dergiler

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Knowledge is described in the Oxford dictionary as simply being, "the information, understanding and skills that you gain through education or experience" (Hornby, 2010, p. 857). Characteristics of knowledge can be summarized as objectivity, probability, order, and ability (Polanyi, 1998). Thus, one can say that all of these characteristics of knowledge are combined in scientific articles. For example, in scientific articles, objectivity must be analyzed and internalized as well as all of the possible outcomes must be considered, and unless created in a precise order, it is not expected that scientific articles will always provide desirable or provable results (Sargut, 2006). Furthermore, as a notion, it is hard to separate scientific articles from "knowledge", since writing a scientific article, just like reading it, is directly connected to one's knowledge (Silverman, 1987), and scientific articles also serve the human propensity of acting upon the knowledge one has acquired.

One of the essential elements of scientific articles is that they create an environment for researchers to become familiar with recent developments in their fields (Silverman, 1987). Scientific articles provide an opportunity for scientists to obtain knowledge regarding current scientific events within their fields, which can ultimately aid in the rapid growth of their field. As Kuhn (1962) states, it is futile to bring benefit to science without first possessing the previously accumulated scientific experience. Also, even if this accumulation process is slow, the means of furthering the collection of knowledge occurs through researchers benefitting from one another while simultaneously following new developments within their research areas which in effect contributes to the advancement of science. Researchers need to keep in touch, follow each other's research, and discuss their findings regardless of which path of science they pursue (Azar, 2006). In this perspective, articles can be identified as elements which facilitate such an environment. Moreover, compiling scientific studies is beneficial in three ways; to disclose the studied aspects of that particular field, clarifying which techniques and methods were used in these studies, and to provide information on what has yet to be investigated within the field (Hart, 1998). In other words, scientific studies that yield quantitative and qualitative information about studies within a particular field increase the possibility of understanding the current state of said field (Yıldız, 2004).

Science, as a whole, includes a variety of fields which are divided into separate branches and sub-fields identified as specializations (Bryman, 2012). One of these specializations is early childhood education. While the institutionalization of a science branch involves a lot of necessary criteria such as forming new departments, conducting scientific meetings for scientific corporations, and regimentation of scientific research; scientific studies are the most crucial criteria (Yılmaz & Altınkurt, 2012). In other words, scientific studies result in the acquisition of valuable knowledge in their respective areas as well as constitute the most beneficial tools for sharing this knowledge. Considering the significance of scientific articles and compiling these articles from different researchers; the goal of the current study was to investigate the descriptive and methodological characteristics of scientific articles regarding early childhood education in Türkiye, in addition to examining their research topics.

Significance of the Study

Researchers are free to choose how their research will progress, which methods are suitable for acquiring the best among many eventual outcomes, the data required for the research and how it is collected, the selection of samples, and the calculation of statistical analyses. However, all of the tendencies adopted in scientific studies today, are inevitably connected to the findings of previous researchers and what their studies ultimately resulted in (Keskin, 2016). To put it another way, researchers' tendencies in most aspects of their studies are inherited from preceding researchers, based on what they have experienced and gathered through their respective literature reviews. Also, it is important to keep track of research trends by examining and organizing educational studies at certain intervals to shed light on scientists who are carrying out studies in their relevant field (Cohen et al., 2011). Therefore, the findings in the current study can aid junior researchers by providing a starting point for their investigations. Additionally, exploring recent tendencies in scientific research on early childhood education will further enlighten researchers, educators, and teacher candidates regarding relevant scientific discussions and inquiries.

Moreover, in the current study, the methodological characteristics of articles were examined in detail.

The methodological characteristics of a study can tell a lot to its readers; including but not limited to the quality and quantity of information regarding its methods, repeatability, and subsequently the credibility of the scientific publication (Gastel & Day, 2016). This can be interpreted as the methodology of a scientific study is capable of providing information about its quality. By presenting detailed information regarding the methodology of the articles researched in the current study, an opportunity is provided for future researchers to make reliable assumptions about the quality of studies in Turkish academic journals regarding early childhood education as well as the research trends employed.

According to Thyer (2008), analyzing articles from scientific journals is beneficial in higher education because it can provide significant observations about fluctuations which have occurred in the related field. Thus, the findings of the current study were able to portray the state of early childhood education research in Türkiye. With this, the current study contributes to the community of early childhood education research by clarifying areas of the field which have drawn comparably less attention, therefore, aiding in the identification of certain disregarded aspects and other aspects which remain trendy. Furthermore, results of this study can enable making comparisons between studies on early childhood education in Türkiye and those of other countries. This should help researchers to better understand where Turkish literature in the field stands in comparison to the rest of the world. Also, they are beneficial for researchers to see in which areas they should place their focus, and subsequently, how a study contributes to the literature of early childhood education within the Turkish context, which should help it to rapidly thrive.

Dressel and Mayhew (1974) state that articles from academic journals and graduate theses/dissertations, are the two most widely utilized sources of information for the spread of knowledge amongst researchers. Thus, the findings in the current study will provide an opportunity to bridge the gap between the two most used bodies of literature within the field, graduate theses/dissertations and scientific articles, and as a result, allow for the comparison of findings from the current study with findings of previous studies conducted in early childhood education. Thus, connecting and comparing these two sources of major scientific knowledge can benefit researchers by providing an indication and comprehensive image regarding the state of the field of early childhood education.

Studies which have been carried out for the purpose of investigating scientific research in their respective field for a given period of time, can provide a framework for future studies within their area. There are these types of national studies, which investigate early childhood education, but those studies either focus on theses and/or dissertations only (Ahi & Kıldan, 2013; Altun et al., 2011; Can Yaşar & Aral, 2011; Demirtaş İlhan & Tantekin Erden, 2019; Durukan et al., 2015; Kaytez & Durualp, 2014) or focus on articles from academic journals but have limited content and scope (Gülay Ogelman & Güngör, 2015; Oğuz & Erbil Kaya, 2017; Öztürk Yılmaztekin & Olgan, 2013; Sarı & Altun, 2018; Şentürk et al., 2015; Yılmaz & Altınkurt, 2012). All of the studies regarding this subject have one thing in common, which is that they state a need for more comprehensive research as well as recommend future studies for working with larger sample sizes. Thus, by having a larger sample and comprehensive research questions, the current study can provide a significant contribution towards filling the gap within the literature.

Again, the purpose of this study was to examine descriptive and methodological characteristics of articles regarding early childhood education published in Turkish academic journals between 2008 and 2018, which were indexed in the Social Sciences Citation Index (SSCI), Emerging Sources Citation Index (ESCI), and/or educational sciences category of the National Academic Network and Information Center (ULAKBIM). In doing so, the study aim was to answer the following questions:

- What are the descriptive characteristics of articles regarding early childhood education published between 2008 and 2018 in Turkish academic journals indexed in SSCI, ESCI, and/or the educational sciences category of ULAKBIM (publication year, language, journals and databases, number of authors per article, departments of the authors)?
- What is the distribution of articles regarding early childhood education published between 2008 and 2018 in Turkish academic journals indexed in SSCI, ESCI, and/or the educational sciences category of

ULAKBIM based on research topics?

- What are the methodological characteristics of articles regarding early childhood education published between 2008 and 2018 in Turkish academic journals indexed in SSCI, ESCI, and/or the educational sciences category of ULAKBIM (research types, research methods, research settings, sampling methods, sample sizes, sample demographics, data collections instruments, data analysis methods)?

Method

Design of the Study

The current study was designed as a quantitative content analysis. Bryman (2012) describes quantitative content analysis as a method in which a researcher analyzes documents based on preset categories in a systematic and replicable way. The study sample, which were the articles selected for review, was collected utilizing the document analysis method, which is explained as an approach for investigating or examining electronic materials or printed documents (Rapley, 2007).

Population and Sampling

In the current study, the study population included all the articles regarding early childhood education published in Turkish academic journals between 2008 and 2018. Due to the fact that working with a large study population can have disadvantages, a sample of 822 articles was chosen via the purposive sampling method. According to Fraenkel et al. (2012), purposive sampling is a sampling method used when the aim is to select samples using criteria which are based on the purpose of the study. Also, Neuendorf (2002) and Krippendorff (2004), noted that when conducting content analysis there is no determined rule regarding sample size. In the line with this information, the sample of the current study was chosen based on the following criteria: (1) Written on a subject regarding early childhood education, (2) Published in a Turkish academic journal indexed in SSCI, ESCI, and/or educational sciences category of the ULAKBIM, and (3) Published between 2008 and 2018. Importantly, issues of journals published in the last quarter of 2018 were not included due to the fact that the data collection in the current study was completed in September of 2018.

The first stage of the data collection process was to compile a journal list from the ULAKBIM and Clarivate Analytics websites. After creating the journal list, the articles were collected for review. Due to the fact that not every journal was available through online search engines, the researchers examined each journal's own archive rather than just relying on well-known search engines. However, some of the journal websites did not have detailed search options, as a result, this caused researchers to examine each journal volume one-by-one in addition to using search options offered by the websites. Furthermore, as mentioned above, only the articles which were written regarding the subject of early childhood education were collected. To be able to achieve this without the researchers' using personal judgment, only articles which used select words about early childhood education as keywords or within their titles or abstracts (both in English and Turkish) were included.

Instrumentation

The instrumentation procedure included three phases. First, a coding instrument was created by the researchers based on various methods. Second, it was sent to experts for review, and third, a pilot study was conducted. In the first phase, a coding instrument was created, the units of analysis were determined, and a codebook was designed by the researchers. According to Fraenkel et al. (2012), converting descriptive information into categories is something all content analysis studies have in common, regardless of their overall characteristics. Additionally, Neuendorf (2002) points out the importance of categorization prior to starting analysis of data. Therefore, defining the categories and subcategories was the first step and was finalized before starting the primary data collection process. The categories and subcategories were determined through various methods. For example, as previously mentioned, there were three basic questions regarding the articles' descriptive, methodological, and subject characteristics. Firstly, the categories regarding the descriptive characteristics were determined by the researchers based on the research questions and design

of the study. Secondly, the categories for the methodological characteristics were primarily obtained from different scientific research books (Büyüköztürk et al., 2016; Fraenkel et al., 2012; Kelly et al., 2008; Merriam, 2009; Newby, 2010; Wortham, 2001). Lastly, categories regarding the research topics were created by examining similar content analyzes conducted in a variety of other fields of education and by thoroughly examining the sub-sample of the primary sample. Additionally, the unit of analysis, which is described as the core component of the content (Prasad, 2008), was determined for each article. Following the determination of the categories and subcategories for the content analysis as well as defining the unit of analysis to be used, a tentative codebook was created. The codebook included all of the categories and subcategories in an organized manner with each of them having its own numbering to make the data collection process more efficient.

In the second phase, to evaluate the data collection instrument and codebook, they were sent to two experts who are researchers from the field of early childhood education as well as faculty members at state universities in Türkiye. Following the experts' review, the instrument and codebook were improved based on their feedback, and following the changes, both items were sent back to one of the experts for a second review.

In the third phase, a pilot study was conducted. Pilot studies allow researchers to check their data collection instrument to determine whether or not the instrument will work as planned as well as to ensure the reliability of the instrument (Krippendorff, 2004). For the pilot study in the current study, approximately 10% of the primary sample was chosen (Neuendorf, 2002; Schreier, 2012) via random sampling (n = 85). In addition to the first author, a second coder who was a doctoral student and research assistant in the field of early childhood education, contributed to the pilot study. Between these two researchers, the inter-coder agreement was ensured by calculating Krippendorff's Alpha. For example, when the same set of data is evaluated by two coders, Krippendorff's Alpha is the most appropriate option evaluating coder-reliability regardless of the number of coders, sample size, different levels of measurement, or anything related to missing data (Hayes & Krippendorff, 2007). As a result, Krippendorff's Alpha was utilized in the current study due to each category having a different number of subcategories. Thus, in this study, using SPSS, the Krippendorff's Alpha was calculated as .88, which showed strong reliability. Importantly, the findings of the pilot study were not included in the main study. Also, the subsample was included back into the primary sample and reexamined using the finalized version of the data collection instrument.

After the instrument and codebook were finalized and all the articles were collected, the data collection procedure was started. During data collection, both researchers remained objective, and without using any personal judgment, only the information that was written by the authors was coded. Therefore, it can be seen in the results that almost all of the categories had the subcategory of "unspecified".

Validity and Reliability

The validity of the current study was enriched by controlling for face validity, content validity, and external validity. To explain, content validity refers to the extent an instrument meets all the requirements which characterize the concepts the instrument aims to measure (Krippendorff, 2004). Thus, to ensure content validity, the instrument and codebook were examined by experts who are researchers in the field of early childhood education and faculty members of state universities. Next, face validity means whether an instrument appears to measure what it is supposed to measure (Krippendorff, 2004). In the current study, the face validity was ensured by acquiring experts' opinions regarding the design of the instrument and codebook as well as exhaustively examining the revised versions multiple times prior to conducting the pilot study. Following this, the pilot study was conducted, and based on results of the pilot study results, a finalized version of the instrument was created. As part of the final stage of ensuring validity, the external validity was examined. External validity is described by Fraenkel et al. (2012), as "the extent to which the results of a study can be generalized" (p. 103). As previously mentioned, the purposive sampling method was utilized to choose a sample that would be representative of the study population. Also, detailed information regarding the sample was presented. Furthermore, reliability is described by Fraenkel et al. (2012), as the accuracy and

consistency of data that are collected through an instrument. As a result, the current study's reliability was ensured by including another coder, apart from the authors, to contribute to the pilot study.

Data Analysis

For the data analysis process in this study, descriptive statistical procedures were used. In content analysis studies, findings are showcased by using frequencies and proportions of specific data for all the data (Fraenkel et al., 2012). Therefore, the findings of this study, which were acquired utilizing the Statistical Package for Social Sciences version 24.0, were presented through frequencies and proportions.

Limitations

It was assumed that the authors' definition of methodology within the articles was done correctly. The researchers did not use any personal judgment throughout the data collection process, and as a result, coded the information regarding the methodological characteristics as they were presented within the articles.

Results

The results of the examination of 822 articles regarding early childhood education from 62 Turkish journals are presented according to three categories which correlate with the research questions of this study.

Descriptive Characteristics of the Articles

The distribution of articles based on their year of publication are presented in Figure 1. Due to the fact that the data collection process was completed on September 1st, 2018, the articles published within the final three months of 2018 were not included within this study, as a result, a sudden drop for the year 2018 was expected. Thus, by excluding articles from 2018, the greatest number of articles were published in 2017 (n = 151). Additionally, the articles reviewed were published in one of four different languages including: Turkish (n = 561), English (n = 188), German (n = 3), and French (n = 1).

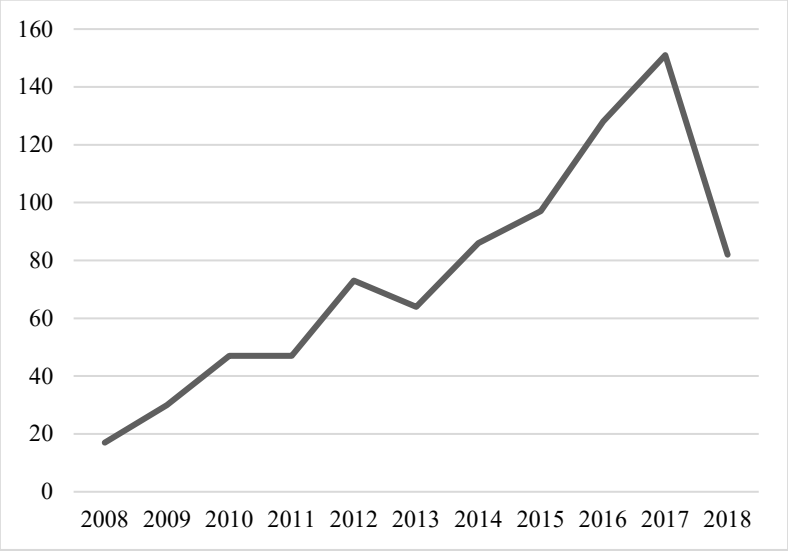

Figure 1. *Distribution of Articles According to Publication Year*

Regarding the distribution of articles according to the databases searched, with 88 publications, the Kastamonu Education Journal (indexed in ULAKBIM) had the greatest number of articles reviewed. While the Journal of Educational Sciences: Theory & Practice (indexed in the SSCI) had the second most articles reviewed with 67 publications. Additionally, 26 of the journals examined had less than five articles each and six of those 26 journals did not include any articles regarding early childhood education. The examined articles' distribution according to database are provided in Table 1. Furthermore, a majority of the journals (63.5%) were only indexed in the ULAKBIM.

Table 1. *Distribution of Articles Based on Databases*

Database	F	%
ULAKBIM	522	63.5
ESCI and ULAKBIM	99	12.0
ESCI	76	9.2
SSCI	67	8.2
SSCI and ULAKBIM	58	7.1
Total	822	100.0

Moreover, 51.3% of the examined articles had two authors, while articles with a single author made up 23.6% of the total articles. Also, more than half of the authors combined were from early childhood education (47.9%) and child development (12.2%). The remaining authors were usually from different education faculties. Furthermore, it was also shown that 51.4% of the articles had at least one author from early childhood education. Additionally, it was seen that 90.6% of the authors who were not from departments of early childhood education or child development, collaborated with at least one other author. Lastly, the percentage of articles which were based on master's theses or Ph.D. dissertations was determined to be 15.3%.

Research Topics of the Articles

The research topics of the reviewed articles were split into ten major categories (Table 2) with each major category including detailed sub-categories. For example, among these 10 major categories "Education" was the most commonly seen (38.8%), which was followed by topics regarding development (23.5%), and those related to teachers (17.0%). Additionally, the least number of publications was related to the topic of children's rights and immigrant children (0.8%). The educational topic sub-categories can be seen in Table 3. The five most popular subjects in this category were science education (n = 43), special education (n = 30), drama (n = 23), math education (n = 21), and play (n = 21).

Table 2. *Distribution of Articles Based on Research Topics*

Research Topics	f	%
Education	424	38.8
Development	257	23.5
Teachers	186	17.0
Parents	81	7.4
Scale development	43	3.9
Health	30	2.7
Children's literature	29	2.6
School	19	1.7
Media	14	1.2
Children's rights / Immigrant children	9	0.8
Total	1092	100.0

Developmental topics, the second most commonly seen subject, was examined according to four categories: social-emotional, cognitive, language and literacy, and physical development. Social-emotional development (52.9%) was the most popular of the four sub-categories. When the social-emotional development topics were examined in detail, it was recognized that social skills/social competence were the most popularly studied topics (22%). While cognitive development topics were the second most popular (23.7%). Thus, among the cognitive development topics, cognitive process skills/thinking skills (18%), math skills (16.4%), and problem solving (13.1%) were the most popular choices by authors. The third most topic related to language was literacy development (18.3%) and fourth was physical development (5.1%).

Table 3. *Sub-categories of Educational Research Topics*

Educational Research Topics	f	%
Special education / inclusion	43	10.1
Science education	30	7.1
Drama / Creative drama	23	5.4
Math education	21	4.9
Play	21	4.9
Early childhood education approaches	19	4.5
Montessori	*10*	
Reggio Emilia	*3*	
Head Start	*2*	
High Scope	*2*	
Bank Street	*1*	
Waldorf	*1*	
Moral / Religion education	18	4.2
School readiness	18	4.2
Environmental education / Sustainability	16	3.8
Curriculum	15	3.5
Storytelling / Interactive reading	15	3.5
Music education	11	2.6
Foreign language education	10	2.3
Literacy education	10	2.3
Intervention program	10	2.3
Art education	9	2.1
Materials	8	1.9
Assessment	8	1.9
Educational technologies	8	1.9
Computer assisted instruction	7	1.6
Museum education	7	1.6
Effects of early childhood education	6	1.4
Creativity education	6	1.4
Project based learning approach	6	1.4
Constructivism	5	1.2
Concept education	5	1.2
Education policies	5	1.2
Guidance and psychological counseling	5	1.2
School adjustment / Classroom adaptation	5	1.2
Lesson plans	5	1.2
International curriculums	5	1.2
Educational settings / Learning centers	5	1.2
Active participation	4	.9
Differentiated instruction	3	.7
Vygotsky	3	.7
Multi-cultural education	3	.7
Movement education	3	.7
Quality of early childhood education	2	.5
Digital games	2	.5
Pedagogical documentation	2	.5
Other	17	4.0
Total	424	100.0

Moreover, it was shown in the findings that the topic of early childhood education undergraduate programs (18.8%) was the most popular topic regarding teachers. It was followed by classroom management (10.7%) and professional perception (10.7%). Also, when it comes to topics regarding parents, the most commonly seen subjects were parent involvement (18.7%), parent education (11.2%), and parent-child

relationships (11.2%). Additionally, the amount of articles regarding father involvement (2.5%) were one quarter the amount of articles about mother involvement (10%).

Methodological Characteristics of the Articles

The research types of the examined articles can be seen in Table 4. Quantitative studies were the most frequently seen among the articles examined (49.5%).

Table 4. *Research Types of the Articles*

Research Type	f	%
Quantitative	407	49.5
Qualitative	280	34.1
Review studies	70	8.5
Mixed	62	7.5
Other	3	.4
Total	822	100.0

As is presented in Table 5, amongst the examined articles, the most used research methods were survey (n = 123), experimental (n = 102), and correlational (n = 96). Moreover, 13.9% of the articles included no information regarding their adopted research methodology.

Table 5. *Research Methods of the Articles*

Research Method	f	%
Survey	123	14.7
Experimental	102	12.2
Correlational	96	11.5
Case Study	79	9.5
Descriptive	71	8.5
Phenomenological	51	6.1
Literature review / Critique	45	5.4
Content analysis	40	4.8
Scale dev. / adaptation / reliability & validity	24	2.9
Basic qualitative design	17	2.0
Action	9	1.0
Single-subject	9	1.0
Casual-comparative	7	.8
Ethnographic	6	.7
Exploratory	4	.5
Explanatory	4	.5
Grounded theory	2	.2
Unspecified	116	13.9
Other	30	3.6
Total	835	100.0

It was also shown in the findings that the most frequently preferred research setting among the examined studies was preschools (73%). While the second most frequently selected research setting was universities (17.3%), which was followed by primary schools (2.9%), and special education schools/rehabilitation centers (1.1%). Additionally, it was found that 3.9% of the studies did not specify their research setting.

Table 6. *Sampling Methods of the Articles*

Sampling Method	f	%
Unspecified	331	43.5
Purposive Sampling	154	20.3
Simple Random Sampling	112	14.7
Convenience Sampling	94	12.4
Cluster Random Sampling	21	2.8
All of the Population	20	2.6
Stratified Random Sampling	18	2.4
Two-stage Random Sampling	9	1.2
Systematic Sampling	1	.1
Total	760	100.0

Note. Articles in which this category was not applicable were excluded from the table (n = 62).

As is shown in Table 6, 43.5% of the examined articles included no information regarding their sampling methods. Among the articles that included information about their sampling methods, the most commonly chosen was purposive sampling (n = 154). Additionally, 2.6% of the articles worked with all of the population. Furthermore, the examination of sample sizes showed sample sizes between 30 and 100 (29.1%) was the most popular and was closely followed by sample sizes between 100 and 300 (28.2%).

Table 7. *Sample Demographic of the Articles*

Sample Demographic	f	%
People	837	89.9
Children	339	36.4
In-service teachers	225	24.1
Pre-service teachers	126	13.5
Parents	115	12.3
Mothers & Fathers	*66*	
Mothers	*43*	
Fathers	*3*	
Others	*2*	
School administrators	13	1.3
Primary education teachers	10	1.0
Academicians	8	.8
Psychological counselors	4	.4
Others	5	.5
Documents	83	8.9
Previous studies in the field	30	3.2
Children books	24	2.6
Curriculum	13	1.4
Undergraduate curriculum	2	.2
Lesson Plans	2	.2
Others	12	1.3
Schools	11	1.2
Total	931	100.0

Note. Articles in which this category was not applicable were excluded from the table (n = 23).

Children (36.4%) were the most commonly chosen sample demographic among the articles and the average age of children in the articles was 62 months. The second and third most commonly chosen sample groups were in-service (24.1%) and pre-service (13.5%) early childhood education teachers, which was next followed by parents (12.3%).

Table 8. *Data Collection Instruments of the Articles*

Instruments	f	%
Questionnaire	264	24.8
Interview	219	20.6
Document analysis	111	10.4
Performance test	103	9.7
Observation	77	7.2
Rating scale	74	7.0
Achievement or Aptitude test	67	6.3
Attitude scale	33	3.1
Personality inventory	23	2.2
Checklist	17	1.6
Anecdotal records	14	1.3
Unspecified	6	.6
Sociometric device	4	.4
Photograph and video recording	4	.4
Tally sheet	3	.3
Projective device	2	.2
Other	41	3.9
Total	1062	100.0

Note. Articles in which this category was not applicable were excluded from the table (n = 27).

Shown in Table 8 are the data collection instruments utilized in the examined articles. Among these, the most popular data collection instrument used was questionnaires (24.8%), followed by interviews (20.6%), and document analyses (10.4%).

Table 9. *Development of the Data Collection Instruments of the Articles*

Development of the Instruments	f	%
Developed by the researcher	399	46.9
An adaptation done by another researcher	212	24.9
Developed by another researcher and no adaptation needed	147	17.3
An adaptation done by the researcher	55	6.5
Unspecified	37	4.3
Total	850	100.0

Note. Instruments in which this category was not applicable were excluded from the table (n = 239).

Next, information regarding the development of instruments within the articles is presented in Table 9. As is shown in the table, 46.9% of the instruments used were developed by the respective author. Additionally, it was noticed that 54.6% of the instruments that were designed by the researchers were interview questions.

Table 10. *Data Analysis of the Articles*

Data Analysis	f	%
Parametric Tests	458	35.9
T-test	146	
ANOVA	106	
Correlation	86	
Factor Analysis	45	
Regression	36	
ANCOVA	15	
MANOVA	13	
SEM/Path/Multilevel Modelling/MFRM	9	
MANCOVA	2	
Non-Parametric Tests	236	18.5
Mann-Whitney U Test	90	
Kruskal-Wallis Test	58	
Wilcoxon Signed Rank Test	43	
Chi Square	26	
Spearman's Rank Order Test	16	

Friedman Test	3	
Qualitative Analysis	311	24.4
Descriptive Analysis	181	14.2
Literature Review	45	3.5
Content Analysis	40	3.1
Unspecified	5	0.4
Total	1276	100.0

Lastly, the data analysis methods of the articles were investigated. As a result, it was determined that the most popular data analysis method seen amongst the articles was inferential statistics (47%) and the studies which did not provide information regarding the data analysis method were less than 1%. Furthermore, in Table 10 it is shown that parametric tests were the data analysis methodology most used by researchers at 35.9%, while the percentage of articles using non-parametric tests were 18.5%. Among the parametric tests, the *t*-test was the most used (n = 146). On the other hand, the Mann-Whitney U Test was the most popular choice among researchers for non-parametric tests.

Conclusion and Discussion

Descriptive Characteristics of the Articles

In general, the publication of articles usually showed a continuous increase over time except in two instances: (1) the number of publications were the same in 2010 and 2011, and (2) there was a 12% decrease in publications in 2013. These exceptions may not be significant due to the fact that the amount of time between submitting and publishing an article often varies depending on the journal. For example, in a study by Thyer and Myers (2003), it was revealed that in journals from the field of social work, the period between submitting and publishing an article may be as long as two years. This finding can be justified by journals from other departments as well. It appears the reason behind academic journals taking a long time to publish articles may be the number of article submissions received and the limited number of referees for review compared to submissions. Additionally, as expected in journals published in Türkiye, the language most commonly chosen for publication was Turkish (68.2%).

Moreover, the Kastamonu Education Journal had the greatest number of publications regarding the subject of early childhood education (n = 88). The reason for this might be the fact that the Kastamonu Education Journal was established in 1995 and had over 40 issues within the time frame of the current study. Furthermore, it was seen that journals indexed in the SSCI and ESCI were more popular than others. This is likely due to authors choosing these journals due to the number of points earned from the academic incentive system in Türkiye being higher for articles published in international publications that it is for national publications. Also, the examination of the journals in this study showed that only two Turkish academic journals on education were listed in the SSCI. However, when similar studies conducted in previous years were examined, it can be seen that in 2017 (Asan, 2017) there were three such journals, and in 2012 (Yılmaz & Altınkurt, 2012) there had been seven Turkish academic journals on education listed within the SSCI. As a result, it can be said that Turkish educational journals have been losing ground in international databases even though the number of Turkish academic journals from various fields have increased in quantity at the same time (Asan, 2017).

It was shown in the results of the current study that 51.3% of the examined articles were co-authored. This finding might be explained by the fact that articles written based on master's theses or PhD dissertations made up approximately 15% of the published articles. Likewise, articles which were written based on a conference presentation or regarding the scope of a class were similar in frequency. In light of this information, one can conclude that most of the articles which were published by two authors were articles authored by a student and their advisor. Moreover, the number of single author articles published over the years showed a rapid increase in 2016. Interestingly, this time correlates with the beginning of the academic incentive program in Türkiye.

As the final item of the descriptive characteristics of the articles, the authors' departments were

examined. As expected, a majority of authors were from early childhood education departments (47.9%), followed by child development (12.2%), and educational sciences (8.6%). Additionally, even though each had low frequency, there were authors from a variety of departments such as landscape architecture, graphic design, fashion design, nutrition education, plant and animal production, statistics, and so forth. Further research showed that 90.6% of the authors from outside early childhood education, included at least one other author. This finding can be interpreted as most of the articles written by authors outside of early childhood education were products of an interdisciplinary study. For example, interdisciplinary studies are often a communication and reciprocal integration between different disciplines with benefits for all (Figueiredo & Pereira, 2017). Furthermore, the benefit of interdisciplinary studies is that they create opportunities for researchers to discover various points of view regarding the same subject.

Research Topics of the Articles

Research topics from the examined articles were organized according to ten major categories with each major category also including detailed sub-categories. Educational subjects were found to be the prevailing choice in approximately 40% of the articles. This finding parallels other studies which examined theses and dissertations from early childhood education (Ahi & Kıldan, 2013; Demirtaş İlhan & Tantekin Erden, 2019). Amongst the educational subjects, special education/inclusion (n = 43) and science education (n = 30) were the two most commonly seen subjects. Additionally, special education was also one of the top choices in the category of educational subjects for theses and dissertations within early childhood education (Demirtaş İlhan & Tantekin Erden, 2019). However, almost a decade earlier, Ahi and Kıldan (2013) found that science and nature education are the most popular choices among theses and dissertations.

In other similar research, Keskin (2016), examined publications from Early Childhood Research and Practice as well as International Research in Early Childhood Education for the years 2010 to 2014, based on a variety of approaches for early childhood education (i.e., Waldorf, Reggio Emilia, the Project Approach, Montessori Method, Head Start, High Scope, Tools of the Mind, the Portage Model, the Pyramid Model, and Bank Street). It was shown in Keskin (2016) that for the five years of publications reviewed from two journals, these approaches to early childhood education are mentioned 58 times. On the contrary, findings of the current study showed that for 10 years of publications from 62 journals, the early childhood education approaches (i.e., Montessori, Reggio Emilia, Waldorf, High Scope, Bank Street and Head Start) were the focus of 19 articles.

Next, developmental research topics which were the second most popular subject (23.2%), were examined according to four categories including social and emotional, cognitive, language and literacy, and physical development. Out of these four categories, social and emotional development were the most popular. This finding correlated with the findings from Yılmaz and Altınkurt (2012) who examined 220 articles from early childhood education. In the findings of their study, the most frequently seen research topics were social-emotional skills/behaviors, language/foreign language education, play in preschool, and science teaching/environment. Additionally, similar to the findings of studies from theses and dissertations (Ahi & Kıldan, 2013; Demirtaş İlhan & Tantekin Erden, 2019), the findings in the current study showed that physical development was the least common subject within the category of developmental subjects amongst articles examined (n = 8).

Methodological Characteristics of the Articles

It was shown in the results of the current study that in the examined articles, quantitative studies (49.5%) were more common than qualitative studies (34.1%). These findings were similar to previously conducted studies which focus on articles as well as theses and dissertations (Yılmaz & Altınkurt, 2012; Ahi & Kıldan, 2013). However, in Demirtaş İlhan & Tantekin Erden (2019), the focus on theses and dissertations regarding early childhood education showed that among PhD dissertations, qualitative studies were more commonly seen than quantitative studies. Moreover, amongst the examined articles, 14.1% of them did not specify a research methodology. Similar results were found in other articles (Aydoğdu, 2015; Hüseyinbaş et al., 2018; Dönmez & Gündoğdu, 2016; Yılmaz & Altınkurt, 2012). On the other hand, the number of theses and dissertations that did not specify a research methodology was low (Demirtaş İlhan & Tantekin Erden, 2019).

The reasoning behind articles having a relatively higher amount of missing information regarding their methodology than in theses and dissertations may be related to the flow of articles generally being faster than theses and dissertations. Furthermore, approximately 45% of the examined articles did not mention anything regarding their sampling methods. Importantly, the reliability, especially the external reliability, is an extremely important factor for a study's credibility. For example, external reliability is defined as the ability to generalize findings of the study for different populations (Bryman, 2012) as well as be able to generalize by providing detailed information regarding the sample characteristics (Fraenkel et al., 2012).

Children were also found to be the most popular choice of sample group (36.4%) among the examined articles. This was expected due to similar studies finding children as the most commonly chosen sample demographic as well as children's education being the focal point in this field (Ahi & Kıldan, 2013; Altun et al., 2011; Demirtaş İlhan & Tantekin Erden, 2019; Yılmaz & Altınkurt, 2012). Also, when examining the sample groups of children further, it was revealed that the most popular age group of study were children 60 to 72 months old with the average age of children investigated being 62 months. Additionally, the least studied group among children was found to be those over the age of 84 months and those under the age of 36 months. This can be explained by the definition of early childhood education within the Turkish context. For example, according to Turkish Ministry of National Education (MoNE), the definition of early childhood education is the education of children between the ages of 36 to 72 months (Milli Eğitim Bakanlığı, 2013). This is the case even though internationally the age group extends to 96 months (United Nations Educational, Scientific and Cultural Organization, 2014). Furthermore, based on data from the Organization for Economic Co-operation and Development (OECD, 2018), in Türkiye, among children aged 36 to 60 months old, only 37% overall and less than 2% of children aged 36 months are able to receive early childhood education. As a result, this demonstrates how difficult it is for researchers to reach children under the age of 36 months.

Different from previous studies regarding thesis and dissertation research (Ahi & Kıldan, 2013; Demirtaş İlhan & Tantekin Erden, 2019), it was shown in the findings of the current study that authors more often chose to work with pre-service teachers than with in-service teachers. When we consider that most of the examined articles were designed as quantitative studies which require relatively large sample sizes (Fraenkel et al., 2012) and that most of the authors were academicians, it can be deduced that reaching larger sample groups of pre-service teachers can be easier than reaching large groups of in-service teachers. To continue, in-service teachers' motivation to participate in scientific studies may be lower due to their very busy work schedule.

Also, in accordance with the previous studies (Altun et al., 2011; Demirtaş İlhan & Tantekin Erden, 2019, in the current study, a detailed examination of parental demographics showed that 66 articles worked with both mothers and fathers as a sample group (the ratio of fathers to mothers was relatively low), while 43 articles chose to work only mothers and three articles only with fathers as a sample group. Importantly, there are many studies which have explored the involvement of fathers in all levels of education. Particularly, Ertan's (2017) study regarding the reasons behind the decision of parents to participate in any activity related to parent involvement in early childhood education, revealed that the involvement of fathers is lower than that of mothers. As a result, the lack of involvement of fathers in early childhood education may result in researchers not being able to easily reach fathers, hence making it more convenient for researchers to work with mothers. Even though low in percentage, there were other interesting sample demographics among the examined articles such as baby-sitters, local government officials, health workers, imams, and teaching assistants for in-service teachers.

Next, when it comes to research settings, as expected, the most common choice of setting was preschools (73%). This finding correlates with the results of studies examining graduate theses and dissertation research from the field of early childhood education (Ahi & Kıldan, 2013; Demirtaş İlhan & Tantekin Erden, 2019). The second most commonly chosen research setting was at universities (17.3%), which is in line with the sample demographics. Additionally, the results were more diverse than the results of other studies which focused on theses and dissertation using examples such as museums and book stores.

Furthermore, the top three choices for data collection instruments by the article authors were questionnaires, interviews, and document analyses. For example, 46.9% of the instruments used by the authors were developed by the respective author as well as a majority of the instruments that were designed by the authors were interview questions. On the other hand, a majority of the quantitative data collection instruments used were some form of adaptation. These results were expected because the creation of a data collection instrument, especially a quantitative one, is time consuming, difficult to accomplish, and inconvenient. Thus, using a previously developed data collection instrument is more serviceable than creating a new one (Fraenkel et al., 2012). Lastly, no information regarding the source of the data collection instrument was provided in less than 5% of the examined articles.

Implications and Recommendations

Academic research articles are one of the most easily accessible sources of information for academic researchers and university students. Since research articles are one of the primary sources of information, the quality and variety of these articles is an important factor for the improvement of any academic field. Importantly, in Türkiye, 94.5% of university early childhood education undergraduate programs, only offer courses in Turkish which makes the Turkish literature of the field more critical for these students. As a result, the findings from the current study can provide an opportunity for scholars to become more familiar with a variety of understudied research areas and underused research methods.

In this study, one of the first things observed about the examined articles was their keywords and titles. It was determined that they did not always portray the articles in a way which made them accessible through a database search. Perhaps, paying greater attention to choosing keywords and creating article titles, can make the articles more accessible to their target readers. Additionally, the authors of articles examined in this study were from various fields but comparatively, the frequency of publication from departments outside of educational sciences was low. As a result, in the future, working with researchers from different departments can improve the growth of early childhood education literature as well as add a fresh and divergent perspective. Thus, creating greater opportunities for interdisciplinary studies can benefit not only early childhood education but other academic disciplines as well. To encourage and facilitate such studies, university administrators can offer greater funding for such research. Also, it was determined that articles which were written with three authors, or more, were not common. As a result, working with multiple authors can allow studies to have a variety of perspectives and in effect have an organic form of peer-review throughout the research process. Also, conducting collaborative research with different departments can also improve the ratio of multi-authored articles.

An additional finding regarding the authors, showed that 6.2% of the article authors were in-service early childhood education teachers. As a result, offering in-service teachers' involvement in scientific research can provide advantages such as aiding researchers to have greater and easier connections to other in-service teachers and their students as well as creating more opportunities for in-service teachers to become more familiar with recent educational studies and trends. Being able to encourage in-service teachers to be more involved with scientific studies, can help them be better informed about potential opportunities and benefits they can gain through this collaboration. Furthermore, researchers can help in-service teachers to feel more valued and respected regardless of their amount of participation, and the results of the study can be better shared afterwards.

It was also shown in the findings that there were a variety of less studied subjects in early childhood education. For example, some of the understudied topics were multicultural education, parent-school relationship, movement education, early childhood education approaches, digital games and apps, physical development, father involvement, empathy, parent-school relationship as well as children's rights and immigrant children. To broaden the field of early childhood education in Türkiye, researchers may choose to make contributions to this research area by focusing on these understudied subjects.

Moreover, amongst the articles examined in this study, quantitative studies were more commonly seen than those which were mixed method or qualitative. Also, Hatch and Coleman-King (2015), mention a need

for increasing the number of qualitative studies in early childhood education to reconfigure policy, theory, research, and practice within the twenty-first century. By encouraging researchers to conduct a greater number of qualitative studies in early childhood education, it can greatly benefit researchers, academicians, and policy makers. In making research designs more divergent among available publications, universities can also offer specialized research courses in early childhood education along with providing fundamental scientific research courses. This is important because gaining familiarity with the research methods of one's own discipline can encourage researchers to confidently explore a greater variety of research methodologies.

Among the examined articles, some failed to include necessary information regarding their research methodology. As a result, this can reduce the usefulness and credibility of the published articles. One possible solution can be to create more comprehensive and compulsory lectures regarding research methodologies at the undergraduate and graduate level. Also, academic journals can choose to enforce higher standards regarding the methodology used in their published articles. Additionally, there were some inconsistencies with the stated research method and that which was utilized in the articles. This may have occurred due to a variety of different reasons such as a lack of information about the research methods, not paying attention to details, or the intertwined structures of research methodologies. However, one possible solution may be to focus on the research typology that Johnson (2001) suggested, which is based on the research objective and time dimension. In this way, confusion can be reduced to a minimum.

Lastly, for future research, it is suggested that Turkish academic journals from not only the field of education but also from other fields of study indexed in other databases such as ERIC, EBSCO, and Scopus be studied. Moreover, in addition to examining articles from different scientific publications, it is also suggested to do a more comprehensive study.

Declarations

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