



Research Article

## Thematic Content Analysis for Pre-School Science Education Research Areas in Turkey

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### Abstract

The purpose of this research is to examine the various variables in terms of master dissertations, doctoral dissertations, and articles made in the field of science education in pre-school between the years 2014 and 2019 in Turkey. The present study is a qualitative research. In this study, thematic content analysis was used. After the articles deriving from the dissertations were extracted, a total of 129 publications including 14 doctoral dissertations, 38 master dissertations and 77 articles were reached. At the end of the research, it is seen that most of the postgraduate theses were published in Gazi University and the most articles were published in The Journal of International Social Research. When the distribution of the studies according to the aims of the studies is examined, it is seen that determination studies produced the highest effect while the quantitative studies were conducted at most, considering the research methods. While participant groups mostly involved the students, the scale and interviews were preferred as data collection tools. In accordance with these results, suggestions were made to the researchers who would work on this subject.



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## Introduction

The development and self-renewal of knowledge day by day triggers societies to raise qualified individuals who keep up with this development. Particular emphasis is placed on science education which enables individuals to produce solutions to the problems they encounter in daily life and apply scientific process skills in addition to the knowledge they have acquired during the education process. Researchers working in this field suggest that science education should be included in all stages of education from pre-school (Çakmak, 2006).

Science is an indispensable part of our daily life. It is very important because planting, to observe the germination of seeds, to think about why the boat does not sink in water, to observe that some animals fly while others live in water, to know that the day and

night follows a never-changing cycle, to learn the characteristics of water and rainbow are the information we will gain with science education. All of these are concrete experiences that children will acquire in preschool by using their senses (Şahin, 2000). In addition, these activities support children to learn scientific processes and gain the ability to solve universal problems. In this context, science and nature activities have an important place in preschool education programs.

The pre-school is a period in which children are curious, investigative, willing, and open to learning. For this reason, they try to learn everything they encounter in everyday life and cannot understand through asking questions. The concepts of science are the ones they encounter and wonder most in daily life. Therefore, the first experiences of science begin in this period and form the basis for their progressing life (Cevher-Kalburan, 2009). The science education in the preschool period gives children an opportunity to understand what they wonder at the surroundings and to apply their scientific process skills by making use of children's desire of discovery. It also helps them to develop positive thinking about science (Takaoğlu & Demir, 2018). For this reason, planned activities in preschool institutions should be shaped according to their environment and preschool theories and should be supported in order to eliminate children's questions and curiosities. Moreover, the learning environment should be well organized, be added to daily life and other activities, and provide appropriate science experiences for all children.

Researchers play an important role in improving the quality of science education for young children as well as schools, families, and teachers. For this reason, all the researches about science education in early childhood is indeed one of the important factors affecting the quality and effectiveness of science education programs positively and directly (Ertürk-Kara & Aydın-Şengül, 2016).

In our country, studies related to pre-school education have accelerated after 2000s (Taşkın & Şahin, 2008). Therefore, it is thought that preschool science education studies are still in a development process in our country and the studies to be conducted in this field will make significant contributions to the literature (Özen-Uyar & Ormancı, 2016). However, it is questionable how much of these studies are related to science education. It is expected that determining the current situation in the area of preschool science education which the detected that there are deficiencies in the work area in Turkey and carrying out the new studies planned in the required areas will contribute to the field (Özen-Uyar & Ormancı,

2016). In this case, investigations and meta-synthesis studies provide guidance for researchers. When national databases are examined, it is seen that many studies have been conducted in many areas in early childhood (Kaytez & Durualp, 2014; Can-Yaşar & Aral, 2011). Similar studies were conducted in the field of science education in pre-school (Gülay Ogelman & Güngör, 2015; Ertürk-Kara & Aydın-Şengül, 2016; Özen-Uyar & Ormancı, 2016; Avar & Ilıcan, 2018; Güneş, 2018). However, the study covering the last six years is not included in the literature. In addition, the studies conducted in recent years have dealt with either theses or articles only. There is no study in the literature examining theses and articles related to pre-school science education together. The purpose of this research is to examine the various variables in terms of master dissertations, doctoral dissertations, and articles made in the field of science education in pre-school between the years 2014 and 2019 in Turkey. For this purpose, the following research questions were tried to be answered:

1. What is the distribution of external appearance characteristics of the research? (type of publication, year of publication, place of publication, area of master study of the author)
2. What are the aims of the research?
3. What methods have the research been done?
4. What is the distribution of the participants of the research?
5. What is the distribution of research data collection tools?
6. What is the distribution of methods and techniques used in researches?  
What is the distribution of research topics?

### **Methodology**

This study is a qualitative research which examined the studies carried out in the field of pre-school science education in Turkey between the years 2014 and 2019. Thematic content analysis (meta-synthesis), one of the content analysis types, was used in the current research. Thematic content analysis involves creating, synthesizing, and interpreting the themes or parameters of researches conducted in the same field and in the same subject (Au, 2007; Çalık & Sözbilir, 2014).

#### *Data Collection*

This study consists of master's theses, doctoral theses, and articles in the field of Science Education in preschool period. In the process of data collection, Master's and

doctoral theses were obtained from the National thesis center database of the Board of Higher Education and the articles were obtained from the journals published in Turkey and scanned in the database of Social Sciences Citation Index (SSCI), Ulakbim National Social Sciences Database, and Google Scholar. During the process of scanning, the following keywords were used: “preschool education, preschool science education, science teaching preschool, preschool science activities, preschool science and Nature, Science and nature activities, science and Nature Education, Early Childhood Education, Environmental Education, Science Education in pre-school”. The abstracts of 4 doctoral theses and 5 Master theses were included in the study as no access to the theses were permitted. In addition, if there was an article produced by the same author of the postgraduate thesis, the postgraduate thesis was preferred. In the light of these criteria, a total of 129 publications were reached including 14 doctoral theses, 38 master theses, and 77 articles. In spite of all the scans carried out, it has been thought that not all publications could be reached. This situation and the fact that the study covers the years 2014-2019 are the limitations of the research.

#### *Data Analysis*

The articles and dissertations scanned from the field were recorded in categories. Then, parameters were determined in the subjects connected with the research questions and forming the skeleton of a research. Parameters were identified in the form of appearance characteristics (publication type, publication year, place of publication, the author's master field of study), content properties (research method, data collection tools, participant groups, research objectives and research method used in-technical). In line with these parameters, all articles and theses were examined in detail and tabulated. Later, content analysis was done and the codes were developed into sub-themes and themes. Frequencies and percentages were used to make the data more comprehensible.

A coding framework similar to the one used by Ormancı, Çepni, Deveci and Aydın (2015) in the analysis of the data was established. Detailed information on the generated Coding Framework is presented in Table 1.

**Table 1.** An example of the parameters in which the studies are examined

Theme	Sub Theme	Description
Exterior Features	Place of publication	Published in the journal or uni.
	Year	Publication year
	Type	Publication type
	Author's field of postgraduate studies	The author's recent training in what field
Content Features	Purpose	Purpose of research
	Method	Quantitative, qualitative, hybrid
	Participating groups	Student, teacher, parent, etc.
	Data collection tool	Interview, observation, survey etc.
	Science subject	The subject of the study was made
	Method-technique	Method-technique used in the study

## Finding and Discussion

In this section, the master theses, doctoral theses, and articles were examined within the scope of the research are presented in tables with the help of codes and themes.

### *Findings Related to External Features of Research*

**Table 2.** Distribution of examined master's and doctorate theses by university.

Theme	Code	Master Thesis	Doctoral Thesis	tf	%
University Name	Gazi Uuniversity	2	4	6	11,54
	Çanakkale Onsekiz Mart Uni.	4	0	4	7,70
	Bahçeşehir Üniversitesi	3	0	3	5,77
	Recep Tayyip Erdoğan Uni.	3	0	3	5,77
	Kastamonu University	3	0	3	5,77
	Hacettepe University	0	2	2	3,85
	Necmettin Erbakan Uni.	2	0	2	3,85
	Bartın University	2	0	2	3,85
	Pamukkale University	1	1	2	3,85
	Abant İzzet Baysal Uni.	1	1	2	3,85
	Çukurova University	1	1	2	3,85
	Marmara University	0	1	1	1,92
	Ankara University	0	1	1	1,92
	Karadeniz Technical Uni	0	1	1	1,92
	Boğaziçi University	1	0	1	1,92
	Gaziosmanpaşa University	1	0	1	1,92
	Mustafa Kemal University	1	0	1	1,92
	Yeditepe University	1	0	1	1,92
	Uludağ University	1	0	1	1,92
	Ahi Evran University	1	0	1	1,92
	Uşak University	1	0	1	1,92
	Kafkas University	1	0	1	1,92
	Aydın University	1	0	1	1,92
	Trakya University	1	0	1	1,92
	Aksaray University	1	0	1	1,92
	Dumlupınar University	1	0	1	1,92
	Akdeniz University	1	0	1	1,92
	Yıldız Technical University	1	0	1	1,92
	Afyon Kocatepe University	1	0	1	1,92
	Ortadoğu Technical University	0	1	1	1,92
Erciyes University	0	1	1	1,92	
Dokuz Eylül University	1	0	1	1,92	
<b>Total</b>		<b>38</b>	<b>14</b>	<b>52</b>	<b>100</b>

Table 2 shows the percentage and frequency distribution of postgraduate theses in science education in preschool period according to universities. When Table 2 was examined, the maximum number of postgraduate thesis studies were conducted at Gazi University (f=6) with a ratio of 11,54%. It was followed by Çanakkale Onsekizmart University(f=4) with a rate of 7,70%. Similarly, Ertürk-Kara and Aydın-Şengül (2016) found that more postgraduate theses were made at Gazi University in their study. When we look at the table, master's theses are more than doctoral theses. This result is natural, especially due to the scarcity of doctoral programs in Anatolian universities. What is striking here is the lack of publications in established universities such as Hacettepe University, Marmara University, and Boğaziçi University.

**Table 3.** Distribution of reviewed articles by published journals

Theme	Code	f	%
	Education and Science (SSCI)	3	3,90
	Educational Sciences in Theory And Practice (SSCI)	1	1,30
	International Journal of Education in Mathematics, Science and Technology (IJEMST)	1	1,30
	Creative Drama Journal	1	1,30
	Elementary Education Online	4	5,20
Journal Name	DPÜ Journal of Educational Sciences	1	1,30
	Journal of Human Science	2	2,60
	Atatürk University Kazım Karabekir Journal of the Faculty of Education	1	1,30
	International Journal of Social Sciences And Education Research	1	1,30
	The Journal of International Social Research	4	5,20
	The Black Sea Journal of Social Sciences	2	2,60
	Journal of Research in Education and Teaching	1	1,30
	Mediterranean Journal of Educational Research	1	1,30
	Hitit University Journal of Institute of Social Sciences	1	1,30
	Inönü University Journal of The Faculty of Education	2	2,60
	Mersin University Journal of The Faculty of Education	2	2,60
	Mehmet Akif Ersoy University Journal of The Faculty of Education	1	1,30
	Cumhuriyet University Journal of The Faculty of Education	1	1,30
Journal Name	Journal of Theoretical Education	1	1,30
	Journal of Education for Life	1	1,30
	Caucasian Journal of Science	1	1,30
	Electronic Turkish Studies	1	1,30
	Eurasian Journal of Researches İn Social And Economics	1	1,30
	Hacettepe University Journal of The Faculty of Education	1	1,30
	Bayburt Journal of The Faculty of Education	2	2,60
	Bilecik Şeyh Edebali University Journal of Social Sciences	1	1,30
	Journal of Social Sciences	1	1,30
	Anatolian Journal of Educational Leadership And Teaching	1	1,30
	Atatürk University Journal of the Institute of Social Sciences	1	1,30
	International Journal of Social Sciences Education	1	1,30
	International Journal of Educational Sciences	2	2,60
	The Journal of Academic Social Science Studies	1	1,30
	Route Educational And Social Science Journal	1	1,30
	The Journal of Academic Perspective	1	1,30
	Abant İzzet Baysal University Journal of The Faculty of Education	1	1,30
	Universal Journal of Educational Research	1	1,30
	Pegem Journal of Education and Training	1	1,30
	International Online Journal of Educational Sciences	1	1,30
	Asian Academic Research Journal of Multidisciplinary	1	1,30

International Journal of Progressive Education	1	1,30
International Journal of Early Childhood Education Studies	1	1,30
Kastamonu Education Journal	2	2,60
Journal of Academic Social Research	2	2,60
Çukurova University Journal of The Faculty of Education	1	1,30
Journal of Early Childhood Studies	1	1,30
Mustafa Kemal University Journal of Institute of Social Science	1	1,30
International Journal of Turkish Educational Sciences	1	1,30
International Journal of Family, Child and Education	1	1,30
Erzincan University Journal of The Faculty of Education	2	2,60
International Journal of Scientific Research	1	1,30
The Journal of Educational Reflections	1	1,30
Journal of Awareness	1	1,30
Journal of Research in Informal	1	1,30
Turkish Journal of Primary Education	1	1,30
Gazi Journal of Educational Sciences	1	1,30
Journal of Humanities and Social Sciences Research	1	1,30
E-Kafkas Journal of Educational Research	1	1,30
Karamanoğlu Mehmetbey International Journal of Educational Research	1	1,30
Celal Bayar University Journal of Social Sciences	1	1,30
Pegem Citation Index	1	1,30
<b>Total</b>	<b>77</b>	<b>100</b>

Table 3 indicates that at most 5,20% of the articles published in the field of pre-school science education between 2014-2019 were published in The Journal of International Social Research (f = 4) and Elementary Education Online (f = 4). 5,20% (f = 4) of SSCI indexed journals were published. Özen-Uyar and Ormanlı (2016) found that 16,70% of the articles published in the field of science education in pre-school period between 2010 and 2016 were published in SSCI indexed journals in a similar study.

**Table 4.** Distribution of studies reviewed by publication year

Theme	Code	Master Thesis		Doctoral Thesis		Article		Total	
		f	%	f	%	f	%	f	%
Years	2014	3	7,90	1	7,14	5	6,50	9	6,98
	2015	4	10,52	6	42,86	24	31,17	34	26,36
	2016	8	21,10	2	14,29	12	15,59	22	17,06
	2017	2	5,26	2	14,29	9	11,69	13	10,08
	2018	7	18,42	0	0	12	15,59	19	14
	2019	14	36,84	3	21,43	15	19,48	32	24,81
<b>Total</b>		<b>38</b>	<b>100</b>	<b>14</b>	<b>100</b>	<b>77</b>	<b>100</b>	<b>129</b>	<b>100</b>

Table 4 shows the distribution of publications by years. When the table is examined, it is seen that the most publications were made in 2015 (26,36%, f = 34). 11.8% of these publications consist of master's thesis (f = 4), 17.7% of doctoral thesis (f = 6), and 70.5% of articles (f = 24). When the master theses were examined, it was concluded that the highest number of publications was made in 2019 (36,84%, f = 14). When the doctoral dissertations are examined, it is seen that the most publications were made in 2015 (42,86%,f=6). In addition, no doctoral dissertation was published in 2018. Finally, when the articles were

examined, the highest number of articles was published in 2015 31,17%, (f=24). Özen Uyar and Ormancı (2016) examined the articles published between 2010 and 2016 and found that 22 of the 72 articles (30.50%) were published in 2015. In another study, Ertürk Kara and Aydın Şengül (2016) examined the articles published on the same subject between 2000 and 2015 and found that the most articles were published in 2012 with a rate of 20.0% (f = 6). Many studies conducted in this field show that the number of publications has increased since 2000 (Gülay-Ogelman & Güngör, 2015; Ertürk-Kara & Aydın-Şengül, 2016; Uyar & Ormancı, 2016; Avar & Ilıcan, 2018; Güneş, 2018). It is noteworthy that the number of studies in science education in pre-school period has increased after 2014.

**Table 5.** Distribution of studies examined by type of publication

Theme	Code	f	%
Publication Type	Master Thesis	38	29,46
	Doctoral Thesis	14	10,86
	Article	77	59,69
<b>Total</b>		<b>129</b>	<b>100</b>

According to Table 5, the most articles were published in the field of Science Education in preschool period between 2014-2019 compared to 59,69% (f=77). 29,46% (f=38) was followed by master's thesis. Finally, doctoral dissertations were the least published studies with a ratio of 10,86% (f=14).

**Table 6.** Distribution of the authors of the studies studied in the areas of postgraduate education

Theme	Code	Master Thesis		Doctoral Thesis		Article		Total	
		f	%	f	%	f	%	f	%
Writers' Training Area	Preschool Education	22	57,90	10	71,43	40	51,95	72	55,81
	Science Education	7	18,42	3	21,43	13	16,88	23	17,83
	Child Development	0	0	1	7,14	9	11,69	10	7,75
	Classroom Education	2	5,26	0	0	3	3,90	5	3,88
	Chemistry Education	0	0	0	0	6	7,80	6	4,65
	Physics Education	0	0	0	0	2	2,60	2	1,55
	Biology Education	0	0	0	0	1	1,30	1	0,78
	Department of Chemistry	0	0	0	0	1	1,30	1	0,78
	Special Education	0	0	0	0	1	1,30	1	0,78
	Department of Elementary Education	3	7,90	0	0	0	0	3	2,33
	Education Management and Supervision	3	7,90	0	0	1	1,30	4	3,10
	Lifelong Learning	1	2,63	0	0	0	0	1	0,78
	<b>Total</b>		<b>38</b>	<b>100</b>	<b>14</b>	<b>100</b>	<b>77</b>	<b>100</b>	<b>129</b>

Table 6 shows the distribution of the most recent postgraduate education of the authors who research on science education in preschool. Here, the field of education of the first author of the studies with multiple authors was examined. It is also seen that approximately half of the researchers in the total of all types of publications are researchers



in the field of preschool education (55,81%,  $f = 72$ ). In the second place, researchers in the field of science education (17,83%,  $f = 23$ ) are seen. It is noteworthy that the fields of education of the authors vary especially in the type of articles. It is seen that 57,90% ( $f = 22$ ) of the master's theses made in this field are in the field of pre-school education and 18,42% ( $f = 7$ ) were in the field of science education. As in the other two types of dissertations, the highest number of studies was made in the field of preschool education (71,43%,  $f = 10$ ). The rate of researches in the field of science education in the dissertation was 21,43% ( $f = 3$ ). As a result, it is seen that while researchers did not go too far out of the field in the thesis studies, researchers from various fields prefer article science education in preschool period. In particular, it is observed that chemistry educators from the lower branches of Science gave importance to pre-school science education research.

#### *Findings on Content Characteristics of Research*

**Table 7.** Distribution of the studies according to their objectives

Theme	Code	Master Thesis		Doctoral Thesis		Article		Total	
		f	%	f	%	f	%	f	%
Purpose	Impact Determination	26	59,10	14	70	11	14,10	51	35,92
	Status Determination	10	22,73	1	5	33	42,31	44	30,99
	Opinion T	5	11,36	0	0	16	20,51	21	14,79
	Relationship Determination	2	4,55	0	0	0	0	2	1,41
	Material Development	1	2,27	1	5	0	0	2	1,41
	Scale Development / Adaptation	0	0	4	20	4	5,13	8	5,63
	Document Review	0	0	0	0	9	11,54	9	6,33
	Compilation	0	0	0	0	5	6,41	5	3,52
<b>Total</b>		<b>44*</b>	<b>100</b>	<b>20*</b>	<b>100</b>	<b>78*</b>	<b>100</b>	<b>142*</b>	<b>100</b>

\* Because there are more than one purpose in some of the studies, the number of objectives in Table 7 outweighs the number of studies.

As for Table 7, it is seen that 8 codes have been created for the purpose theme. Among these, the studies on the determination of the impact measure their influence on the areas such as various methods / strategies attitude, success, learning and so on. Situation determination studies are survey studies carried out to reveal the existing situations such as attitudes towards science, science application level determination, and environmental awareness and to determine the status of the situation. Taking opinion is the studies conducted to get opinions from teachers, prospective teachers, parents or students on science and science related issues. Relationship determination is to measure the relationship between two variables of self-efficacy and attitude towards science. Material development is the

studies of the preparation of alternative materials to be used during science teaching and the application of these materials. Scale development is the development of a new measurement tool or adaptation to Turkish. Document review studies include the researches collected and examined in this field. Finally, the reviews are the studies carried out in this field through literature review. In the table, it is seen that impact determination studies (35,92%,  $f = 51$ ) were the most preferred codes in the total of all publication types. Then, it was followed by status determination studies (30,99%,  $f = 44$ ) and views (14,79%,  $f = 21$ ). Most of the doctoral dissertations consisted of impact determination studies (70%,  $f = 14$ ). The renewal of the curriculum and the alternative learning methods in the renewed programs (STEM, argumentation, research and inquiry-based learning) may have pushed researchers to determine the impact of these methods (Öztürk, 2016). Since impact determination studies are experimental studies, it is natural to prefer them in doctoral theses. Again, in the master's theses, impact determination studies (59,10%,  $f = 26$ ) and status determination studies (22,73%,  $f = 10$ ) were preferred. In the articles, more status determination studies (42.31%,  $f = 33$ ) were preferred. The need to determine the current status of researchers, students, teachers, pre-service teachers, and parents may have been effective in choosing such studies. It may also be preferred as data collection is faster in such studies (Takaoğlu & Demir, 2018). Another point that draws attention to the situation determination studies is that the majority of the studies include subjects such as self-efficacy beliefs related to the application of science activities, attitudes towards science teaching, and examination of conceptual knowledge. This may be due to the fact that preschool teachers do not have many lessons in their curriculum during their education; therefore, it is thought that they are lacking in this subject (Ültay & Can, 2015). When we look at the scale development studies, the scale was developed in 20% ( $f = 4$ ) of doctoral theses. Since the doctoral theses are generally experimental studies and based on the research of the effects of a new method / approach, it is thought that they form the scale themselves (Özkan, 2015). On the other hand, master studies do not include any scale development studies. This may be due to the fact that scale development studies contain detailed analyzes.

**Table 8.** Distribution of examined studies according to research method

The me	Sub Theme	Code	Master Thesis		Doctoral Thesis		Article		Total	
			f	%	f	%	f	%	f	%
Research methods	Quantitative	Experimental	7	18,42	8	57,14	4	5,19	19	14,73
		Survey	9	23,68	0	0	21	27,27	30	23,26
		Action Research	0	0	1	7,14	0	0	1	0,78
	Qualitative	Case Study	3	7,89	0	0	11	14,29	14	10,85
		Exception Study	0	0	0	0	3	3,90	3	2,33
		Phenomenology	1	2,63	0	0	1	1,30	2	1,55
		Case Study	1	2,63	0	0	0	0	1	0,78
		Document Analysis	0	0	0	0	13	16,88	13	10,10
		Ethnographic Pattern	0	0	0	0	1	1,30	1	0,78
		Another	1	2,63	0	0	8	10,39	9	6,98
Mixed		16	42,11	5	15,71	15	19,48	36	27,91	
<b>Total</b>		<b>38</b>	<b>100</b>	<b>14</b>	<b>100</b>	<b>77</b>	<b>100</b>	<b>129</b>	<b>100</b>	

The methods of the studies examined are given in Table 8. It is observed that 50% (f=12) of researchers preferred quantitative research in their master's thesis between 2014 and 2019. It is seen that 42,11% (f=16) of quantitative research had scanning patterns. It is observed that 23,68% (f=9) also gave weight to mixed studies. There are only f=6 studies doing qualitative research. When we look at doctoral theses, the method of most of the studies (57,146%, f=8) was experimental pattern and 15,71% (f=5) were mixed. In contrast to master theses, in 48,06% (f=37) of the articles, qualitative research methods were preferred. The most preferred document analysis (16.88%, f=13) and case study (14,29%, f=11) were from qualitative research. The survey pattern from quantitative methods was preferred by 27,27% (f=21) and the mixed method was preferred by 19,48% (f=15). According to the results of all publications, the most preferred method was quantitative method (37,99%, f=49), survey pattern from quantitative methods (23,26%, f=30), then qualitative method (34,15%, f=44), then mixed method (27,91%, f=36) between 2014 and 2019. According to this result, research that prefers survey pattern has generally been done on subjects such as determining attitudes towards science education, determining skills to apply science activities and determining attitudes towards the environment (Yıldız, 2018). The idea of researchers that researches in science are more suitable to quantitative methods may have led to this conclusion (Bağ & Çalık, 2018). However, the results show that a rapid increase in the number of qualitative research has been observed in recent years. It is thought that the interpretation and in-depth investigation of the results of research within the framework of the post-positivist paradigm that changes scientific acceptances is important for the reliability of scientific knowledge (Kuhn, 1962).

**Table 9.** Distribution of the studies examined according to the participant groups

Theme	Code	Master Thesis		Doctoral Thesis		Article		Total	
		f	%	f	%	f	%	f	%
Participating Group	Student	24	54,54	13	68,42	18	21,95	55	37,93
	Teacher	11	25	3	15,79	32	39,02	46	31,72
	Teacher Candidate	5	11,36	1	5,26	19	23,17	25	17,24
	Parent	4	9,10	2	10,53	3	3,66	9	6,21
	Document	0	0	0	0	10	12,20	10	6,90
<b>Total</b>		<b>44</b>	<b>100</b>	<b>19</b>	<b>100</b>	<b>82</b>	<b>100</b>	<b>145</b>	<b>100</b>

Table 9 shows that 54,54% (f=24) students were studied as a participant group and then teachers (25%, f=11) were studied. In doctoral theses, 68,42% (f=13) were studied with students. According to the articles examined, 39,02% (f=32) teachers and 23,17% (f=19) teacher candidates were identified as participants. The results here are consistent with the preferred methods. More experimental methods were preferred in doctoral theses. In other words, since the effects of the applied method/technique on the student are investigated, it is natural that the ratio of participants to the group was high in the doctoral theses of the students. Further survey studies and qualitative studies were also carried out in the articles. This type of study is thought to be preferred because it is easier to collect data from teachers and prospective teachers. Similar results are reached in the study of Ahi and Kildan (2013) which examines postgraduate theses for pre-school education. In contrast to the aforementioned results, the study of Özen Uyar and Ormancı,(2016) on Science Education articles in preschool period concludes that more students are working with.

**Table 10.** Distribution of studied studies according to data collection tools

Theme	Code	Master Thesis		Doctoral Thesis		Article		Total	
		f	%	f	%	f	%	f	%
Data Collection Tools	Observation	7	9,33	6	19,35	4	4,04	17	8,29
	Interview	17	22,67	6	19,35	29	29,29	52	25,37
	Document Review	3	4	4	12,90	18	18,18	25	12,20
	Success /Knowledge /Concept test	8	10,67	2	6,45	7	7,07	17	8,29
	Survey/Forms	9	12	2	6,45	13	13,13	24	11,71
	Scale	27	36	10	32,26	26	26,26	63	30,73
	Rubrics	4	5,33	1	3,23	0	0	5	2,44
	Metaphor	0	0	0	0	2	2,02	2	0,98
<b>Total</b>		<b>75</b>	<b>100</b>	<b>31</b>	<b>100</b>	<b>99</b>	<b>100</b>	<b>205</b>	<b>100</b>

Table 10 shows the distribution of data collection tools used in the studies. It is seen that the most scale and interview data collection tools were used in all publication types as well. In master theses, the data was collected most via scales (36%, f=27), then the most preferred means of data collection was interviews (22,67%, f=17). These results are consistent with the methods preferred in master's thesis. Scales are often the preferred data collection

tools in survey patterns. They are data collection tools used in qualitative and mixed research in interviews. It is observed that the most common survey and mixed methods were used in master's thesis. According to the doctoral theses, the most preferred data collection tool was the scales (32,26%, f=10), then observation (19,35%, f=6) and interviews (19,35%, f=6). While collecting qualitative data in doctoral theses, it is noted that observations and interviews were used together in order to increase reliability and support scientific knowledge. In the table showing the distribution of research methods, it is concluded that the most preferred method in the articles was qualitative research methods. In table10, it is seen that the most interviews (29,29%, f=29) are preferred in the articles. As with others, scales are followed (26,26%, f=26). Similar results have been obtained in recent studies (Bağ & Çalık, 2018; Güneş, 2018). This may be due to the emphasis on mixed and qualitative studies in recent years.

**Table 11.** Distribution of methods / techniques used in the studies studied

Theme	Code	Master Thesis		Doctoral Thesis		Article		Total	
		f	%	f	%	f	%	f	%
Methods / Techniques	Computer-aided	2	5,13	0	0	2	2,56	4	3,03
	STEM/ FETEMM	4	10,26	2	13,33	1	1,28	7	5,30
	Analogy	1	2,56	0	0	2	2,56	3	2,27
	Creative drama	1	2,56	0	0	2	2,56	3	2,27
	Family participation	1	5,13	0	0	1	1,28	2	1,51
	Argumentation	2	5,13	2	13,33	0	0	4	3,03
	Outdoor activities	1	2,56	1	6,67	1	1,28	3	2,27
	Environmental education program	2	5,13	1	6,67	0	0	3	2,27
	Concept cartoons	1	2,56	0	0	0	0	1	0,75
	Activity based	7	17,95	6	40	4	5,13	17	12,88
	Brain based	0	0	1	6,67	0	0	1	0,75
	Experiment	0	0	2	13,33	0	0	2	1,51
	Museum education	0	0	0	0	1	1,28	1	0,75
	Problem solving	0	0	0	0	1	1,28	1	0,75
	5E method	1	2,56	0	0	1	1,28	2	1,51
	Picture cards	1	2,56	0	0	1	1,28	2	1,51
	Using model	0	0	0	0	2	2,56	2	1,51
	Survey	15	38,46	0	0	59	75,64	74	56,06
<b>Total</b>		<b>39</b>	<b>100</b>	<b>15</b>	<b>100</b>	<b>78</b>	<b>100</b>	<b>132</b>	<b>100</b>

Table 11 shows the distribution of the methods and techniques used in the studies and their effectiveness. Studies that are not used in methods and techniques have been added to the table as a survey study. When the table is examined, it is seen that half of the master's thesis (38,46%, f=15) were survey studies. In the remaining 61,54%, methods/techniques such as computer aided education, argumentation, environmental education program were used. When we examine the doctoral theses, half of the studies (40%, f=6) were given activity-based instruction. The remaining 60% included

argumentation, brain-based training, outdoor activities, environmental education program, and experimentation. As can be seen, a method/technique was used to determine the effect in all doctoral studies. When we look at the articles, a large proportion (75,64%, f=59) were scanned. In experimental studies, the preferred methods/techniques were more activity-based teaching (5,13%, f=4). Different methods/techniques have been used in the studies since the researches studied are largely aimed at examining the development of the students with a new method/technique. This result may be due to the fact that research prefers to work in science education subjects mostly by experimental methods. Furthermore, the increased diversity of alternative learning approaches with the updating of the curriculum and the willingness by researchers to investigate the effectiveness of these approaches may have produced such a result. On the other hand, studies aimed at due diligence were also significantly preferred (Bağ & Çalık, 2018).

### Suggestions

This study aims to determine what has been done in this field by examining the master's, doctoral theses, and articles made in the field of Science Education in preschool period in the last six years in Turkey and to show new researchers and field educators by highlighting what is needed and what is missing.

When the research is examined, it is noted that very few articles are published in SSCI-indexed journals. This may be due to the fact that the articles are mostly screening studies to determine the situation. More authentic studies can be emphasized to be accepted by such journals.

It is pointed out that influence determination studies are more preferred in doctoral theses. In the majority of master's theses and articles, survey studies with no method/technique are preferred. Such studies are also studies that attempt to determine attitudes towards science and the environment. The fact that such studies are being carried out continuously shows that they are repeated and prevent the emergence of original studies. The pre-school curriculum is a continuously updated program. It is thought that it will be better for literature to conduct experimental and impact determination studies with activities based on the game which have been frequently mentioned in the curriculum recently, promoting the use of close environmental facilities for educational purposes, prioritizing the development of creativity, and being a priority for children to discover and learn.

In addition, the innovations can be adapted to the studies in our country by following the studies in the related field summer abroad.

Studies show that the attitudes of teachers and prospective teachers towards science education are good; however, they have difficulty in implementing activities and implementing new techniques. In-service training courses or BAP, TUBITAK-supported projects can be developed to address the deficiencies of teachers and teacher candidates.

The measurement and evaluation tools that are used are usually scales due to the fact that the majority of the studies are case studies. However, studies can be conducted where we combine both quantitative and qualitative research using many alternative measurement tools that enable us to investigate the subject in depth.

In the examination of studies conducted in science education in preschool period, it is seen that the authors of the studies show a variety of postgraduate education areas. This is because pre-school science education is an area that has been studied in recent years. For this reason, it contains many areas to be studied and explored. These areas should be uncovered.

This work includes only works published in Turkey. Trends can be determined by examining studies related to pre-school science education published in journals with high impact value abroad. The results determined can be compared with the results of this research to identify the deficiencies, new concepts, and variables.

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*The data used in this study was confirmed by the researchers that it belongs to the years before 2020.*

#### *Authorship Contribution Statement*

**Hatice GÜLER:** *Conceptualization, design of the work, literature search, data analysis, data interpretation, writing - review and editing.*

**Erol TAŞ:** *Conceptualization, data collection, preliminary analyses, manuscript draft, writing, manuscript revision*

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## Ek 1. Bu çalışmaya dâhil edilen akademik yayınlar

Yayın Türü	Yayın Adı	İlk Yazarın Adı	Yılı
Doktora Tezi (PhD)	Deneylerin anasınıfına devam eden 6 yaş çocuklarının problem çözme becerilerine etkisinin incelenmesi.	M.ÜNAL	2014
YL Tezi (Master)	Okul öncesi öğretmen adaylarının fen eğitimine yönelik öz yeterlikleri başarı amaç oryantasyonları ve öğrenme yaklaşımları arasındaki ilişkinin incelenmesi.	A.BÜYÜKTANIR	2014
YL Tezi (Master)	Bir okul öncesi kurumunda örnek bir olay incelemesi: fen eğitimi ile ilgili öğretmen uygulamaları ve görüşleri.	A.B.ÇEVİREN	2014
YL Tezi (Master)	Okul öncesi eğitim kurumlarında uygulanan fen eğitiminin içeriği konusunda öğretmen görüşlerinin incelenmesi.	H.DAĞLI	2014
Makale-Article	Toprakla buluşan çocuklar: küçük çocuklar için toprak eğitimi projesinin etkililiği.	H. G.OGELMAN	2014
Makale-Article	Türkiye ve bazı Avrupa Birliği ülkelerinde okul öncesi öğretmenliği programlarında fen eğitiminin incelenmesi .	N. KAYHAN	2014
Makale-Article	Okul öncesi öğretmen adaylarının fen öğretimine yönelik sonuç beklentisi inançlarını etkileyen faktörler.	R. OLGAN	2014
Makale-Article	Okul öncesi öğretmen adaylarının bilim ve bilim insanı kavramlarına ilişkin metaforik algıları.	T.ŞENEL	2014
Makale-Article	Toprakla buluşan çocuklar: küçük çocuklar için toprak eğitimi projesinin etkililiği.	H. G.OGELMAN	2014
Doktora Tezi (PhD)	Okul öncesi eğitim programına kaynaştırılan çevre eğitimi programının çocukların “çevre” kavramı hakkındaki zihinsel model gelişimine etkisi	B. AHİ	2015
Doktora Tezi (PhD)	5-6 yaş okul öncesi çocuklarına problem çözme becerisinin kazandırılmasında etkinlik temelli fen öğretim uygulamalarının etkisinin incelenmesi.	P.AKSÜT	2015
Doktora Tezi (PhD)	Okul öncesi çocuklar için “ çocuklar için çevre ölçeği ” nin geliştirilmesi ve çevre eğitim programının çocukların çevreye karşı tutumlarına etkisinin incelenmesi.	N.B.KOÇAK TÜMER	2015
Doktora Tezi (PhD)	Çevre eğitim programının 48-66 aylık çocukların çevresel farkındalıklarına etkisi.	F.KURT GÖKÇELİ	2015
Doktora Tezi (PhD)	Fen eğitim programının beş yaş çocuklarının fen öğrenimi ve bakış açısı alma becerilerine etkisinin incelenmesi.	S.ÖLÇER	2015
Doktora Tezi (PhD)	60-72 aylık çocuklar için bilimsel süreç becerileri ölçeğinin geliştirilmesi ve beyin temelli öğrenmeye dayanan fen programının bilimsel süreç becerilerine etkisi.	B.ÖZKAN	2015
YL Tezi (Master)	Okul öncesi eğitimde öğretmenlerin fen ve doğa etkinliklerini uygulama düzeylerinin belirlenmesi.	C.B.DURMUŞ	2015
YL Tezi (Master)	Okul öncesi dönem çocuklarının çoklu zekâ alanları ile çevreye karşı tutumlarının incelenmesi.	H.GENÇ	2015
YL Tezi (Master)	Okul öncesi eğitim kurumlarında fen eğitiminde kullanılan materyallerin okul öncesi öğretmenlerin görüşlerine göre değerlendirilmesi.	F.HASESKİ DEMİR	2015
YL Tezi (Master)	Okul öncesi dönemdeki çocuklara yönelik yapılandırmacı öğrenme kuramına dayalı kavram karikatürlerinin geliştirilmesi ve uygulanması.	M.A.ZOROĞLU	2015
Makale-Article	Okul öncesi öğretmen adaylarının çevre sorunlarına olan ilgi düzeylerinin bazı değişkenlere göre incelenmesi.	E.ALABAY	2015
Makale-Article	Okul öncesi öğretmenlerinin fen etkinliklerinde problem çözme becerisi kazandırmaya yönelik uygulamaları üzerine bir inceleme.	G.G.AKDUMAN	2015
Makale-Article	Okul öncesi öğretmenlerinin fen eğitimine yönelik görüşlerinin ve hizmetçi eğitim ihtiyaçlarının belirlenmesi.	O.ASLAN	2015
Makale-Article	Okul öncesi öğretmen adaylarının fene ve fen öğretimine yönelik tutumlarının incelenmesi.	M.CAN	2015
Makale-Article	Okul öncesi öğretmen adaylarının 5e yöntemini kullanarak deney yapma ile ilgili görüşleri.	S.DEMİR	2015
Makale-Article	Effect of museum education on teaching extinct animals lived in anatolia to pre-school children.	R.DİLLİ	2015
Makale-Article	Okul öncesi öğretmen adaylarının “kimya” metaforlarının karşılaştırılması üzerine bir çalışma.	N.DÖNMEZ USTA	2015
Makale-Article	Okul öncesi eğitim öğretmenlerinin fen eğitimine ilişkin görüşlerinin belirlenmesi.	H.ELMAS	2015
Makale-Article	Changing preschool children’s attitudes into behavior towards selected environmental issues: An action research study.	G.ERTÜRK KARA	2015
Makale-Article	Okul öncesi öğretmenlerinin fen etkinliklerinde tercih ettikleri kazanım ve yöntemlerin belirlenmesi.	D.GEZGİN	2015
Makale-Article	Hazır planlarda yer alan fen etkinliklerinin okul öncesi eğitim programı temel özellikleri açısından incelenmesi.	S.Y.GÜDER	2015
Makale-Article	Investigation of the efficiency of “We are learning about the soil with Tipitop and his friends 6” entitled soil education project.	H.G.OGELMAN	2015
Makale-Article	Türkiye’deki okul öncesi dönem çevre eğitimi çalışmalarının incelenmesi: 2000-2014 yılları arasındaki tezlerin ve makalelerin incelenmesi.	H.G.OGELMAN	2015
Makale-Article	Okul öncesi eğitim programındaki etkinliklere yönelik öz-yeterlik inanç ölçeğinin geçerlik ve güvenirlik analizi.	F.KOÇ	2015
Makale-Article	An investigation of preschool teachers use of school gardens in Turkey.	M.MART	2015
Makale-Article	Okul öncesi öğretmen adaylarının fen öğretimi öz yeterlik inançlarının çeşitli değişkenlere göre incelenmesi.	N.OKUR AKÇAY	2015
Makale-Article	Teachers’ views about teaching science in preschool.	N.OKUR AKÇAY	2015

Article			
Makale- Article	Okul öncesi öğretmenlerinin fen öğretimine karşı tutum ve inançlarına yönelik ölçeğin Türkçeye uyarlanması.	N.OKUR AKÇAY	2015
Makale- Article	Anaokulu çocuklarının dünyanın şekline ilişkin zihinsel modelleri	M.SAÇKES	2015
Makale- Article	Okulöncesi öğretmenlerinin fen etkinlikleri hakkındaki görüşlerinin belirlenmesi	M.SAĞLAM	2015
Makale- Article	Okulöncesi fen eğitiminde analogi kullanımının önemi ve analogi örnekleri	H.G.SEYHAN	2015
Makale- Article	Okul öncesi öğretmen adaylarının bazı fen kavramları hakkındaki kavramsal bilgilerinin kesitsel olarak incelenmesi.	N.ÜLTAY	2015
Makale- Article	Okul Öncesi Öğretmen Adaylarının Isı ve Sıcaklık Konusundaki Kavramsal Bilgilerinin Belirlenmesi.	E.ÜLTAY	2015
Makale- Article	A thematic review of interactive whiteboard use in science education: Rationales, purposes, methods and general knowledge.	Ü.ORMANCI	2015
Doktora Tezi (PhD)	Okul öncesi eğitimde sorgulama temelli fen etkinliklerinin geliştirilmesine yönelik eylem araştırması.	İ.ETİ	2016
Doktora Tezi (PhD)	Sorgulama temelli bilim eğitimi programının 60-72 aylık çocukların bilimsel süreç becerileriyle dil ve kavram gelişimlerine etkisi.	M.ÖZTÜRK	2016
YL Tezi (Master)	Okul öncesi dönemde fen eğitiminin uygulanabilirliğine yönelik öğretmen ve yöneticilerin görüşlerinin incelenmesi.	N.AKYOL	2016
YL Tezi (Master)	Açık alan etkinlikleriyle desteklenmiş okul öncesi eğitimin öğrencilerin bilimsel süreç becerilerine etkisi.	P.CİVELEK	2016
YL Tezi (Master)	Ailelerin fen ve doğa etkinlikleri ile ilgili okuryazarlıklarının çocukların doğacı zeka düzeylerini etkilemesinin incelenmesi.	D.D.DENİZ	2016
YL Tezi (Master)	Proje yaklaşımına dayanan aile katımlı çevre eğitimi programının 5-6 yaş çocuklarının çevreye yönelik farkındalık ve tutumlarına etkisinin incelenmesi.	A.EROL	2016
YL Tezi (Master)	Yapılandırıcı yaklaşıma uygun olarak geliştirilen etkinliklerin okul öncesi öğretmen adaylarının tutum ve başarısına etkisi.	M.Y.GÜNEY	2016
YL Tezi (Master)	Okul öncesi öğretmenlerinin fen öğretimine yönelik tutumları ile öz yeterlilik düzeyleri arasındaki ilişkinin incelenmesi.	Y.M.ORKUNOĞLU	2016
YL Tezi (Master)	Tahmin-Gözlem-Açıklama Stratejisine Dayalı Fen Ve doğa Etkinliklerinin, okulöncesi Öğrencilerinin Bilimsel Süreç Becerilerine Ve bilişsel Alan Yeteneklerine Etkisi.	H.SAĞIREKMEKÇİ	2016
YL Tezi (Master)	Okul öncesi dönemdeki çocukların (60-72 ay) çevreye yönelik tutumlarına çevre eğitim programının etkisi .	S.USLUCAN	2016
Makale- Article	Okul öncesi öğretmenlerinin çevre eğitimiyle ilgili görüşleri.	F.AGGUL YALÇIN	2016
Makale- Article	Yaratıcı drama yöntemi ile verilen eğitimin okul öncesi öğrencilerinin çevre farkındalığına etkisi.	Ö.AYDIN	2016
Makale- Article	"Yeşil kimya ile çevreyi koruyorum" isimli projenin okul öncesi dönem çocuklarının çevreye yönelik bilgi düzeyi üzerindeki etkisinin incelenmesi.	M.ÇABUK	2016
Makale- Article	Türkiye'de okul öncesi dönemde fen eğitimi alanındaki çalışmaların incelenmesi.	G.ERTÜRK KARA	2016
Makale- Article	Çocukların bilim insanları ve icatlarına yönelik fikirlerinin oluşumunda drama yönteminin etkisini incelemek.	A.A.GENÇER	2016
Makale- Article	Okul öncesi eğitimde alan gezisi etkinlikleri.	E.KIZILTAŞ	2016
Makale- Article	Determining the Views and Adequacy of the Preschool Teachers Related to Science Activities.	N.OKUR AKÇAY	2016
Makale- Article	Okul öncesi dönemde fen öğretiminde teknolojinin rolü.	N.OKUR AKÇAY	2016
Makale- Article	Okul öncesi dönem çocukların farklı çevre konularına yönelik ekosantrik ve antroposentrik tutumları.	R.ÖZEN UYAR	2016
Makale- Article	Türkiye'de okul öncesi dönem fen eğitimi araştırmalarında güncel eğilimler: bir tematik analiz çalışması.	R.ÖZEN UYAR	2016
Makale- Article	Okul öncesi fen eğitiminde analogi yöntemi ve analoginin okul öncesi eğitim programlarında yer alma düzeyi.	H.ŞAHİN	2016
Makale- Article	Okul öncesi öğretmen adaylarının bilim, sözde-bilim algıları.	H.TURGUT	2016
Doktora Tezi (PhD)	Okul öncesi öğretmen adaylarına yönelik bilimsel yaratıcılığı destekleyen öğretim teknikleriyle hazırlanmış etkinliklerin değerlendirilmesi.	N.AKCANCA	2017
Doktora Tezi (PhD)	Okul dışı öğrenme ortamlarının fen eğitiminde kullanılmasının okul öncesi dönemdeki çocukların bilimsel süreç becerilerine etkisi.	G.ULUDAĞ	2017
YL Tezi (Master)	Okul öncesi eğitime devam eden çocuklardan argümantasyon uygulamalarının canlı-cansız kavram bilgisi ve argümantasyon düzeylerine etkisi.	S.ÜNVER HALVACI	2017
YL Tezi (Master)	Aile katımlı fen etkinliklerinin 5 - 6 yaş grubu çocukların bilimsel süreç becerilerine ve bilime karşı tutumlarına etkisi.	G.YILMAZ	2017
Makale- Article	Okul öncesi öğretmenlerinin fen eğitimi uygulamalarına yönelik görüşlerinin belirlenmesi.	N.AKCANCA	2017
Makale- Article	Okul öncesi öğretmenliği bölümü öğrencileri ve ön lisans çocuk gelişimi programı öğrencilerinin fen öğretimine yönelik tutumlarının incelenmesi.	S.AKTEMUR GÜRLER	2017
Makale- Article	Okul öncesi öğretmenlerinin fen ve doğa etkinliklerini uygulamadaki yeterliliklerinin belirlenmesi.	N.DÖNMEZ USTA	2017
Makale- Article	Okul öncesi öğretmen adaylarının sürdürülebilir çevreye ilişkin davranış düzeylerinin incelenmesi.	A.H.KARADEMİR	2017

Makale-Article	Okul öncesi öğretmenlerinin çevre eğitimine yönelik görüşlerinin incelenmesi.	B.ÖZKAN	2017
Makale-Article	Okul öncesi sınıflarındaki fen merkezleri ve kullanım durumlarının incelenmesi-Kilis örneği.	A.SİMSAR	2017
Makale-Article	Okul öncesi eğitim kurumlarında fen okuryazarlığına ilişkin yapılan çalışmaların değerlendirilmesi.	Ö.TAHAN	2017
Makale-Article	Okul öncesi öğretmen adaylarının fen eğitimine yönelik özyeterlik algıları.	P.TUĞBA ŞEKER	2017
Makale-Article	Okul öncesi fen eğitiminde model kullanımı.	A.Y.TÜRKOĞLU	2017
YL Tezi (Master)	Fen eğitiminde okulöncesine yönelik yaklaşımlardan stem ve montessori yöntemlerinin öğretmen görüşleri doğrultusunda karşılaştırılması.	S.AÇIKGÖZ	2018
YL Tezi (Master)	Okul öncesi dönem çocuklarında çevre kirliliği farkındalığı oluşturmada geleneksel öğretim ve teknoloji destekli yöntemlerin karşılaştırılması.	F.ALTIÑOY	2018
YL Tezi (Master)	Yaratıcı drama uygulamalarının okul öncesi dönemi öğrencilerinin besinler konusundaki öğrenmelerine ve sosyal uyum becerileri kazanmalarına etkisi.	B.ASLAN	2018
YL Tezi (Master)	Okul öncesi öğretmenlerinin fen öğretimine yönelik tutumları ile okul öncesi eğitim programında yer alan fen etkinliklerini uygulama durumları.	Z.GÜVENİR	2018
YL Tezi (Master)	Okul öncesi fen eğitiminde analogilerin ve bilgisayar destekli eğitimin akademik başarı açısından değerlendirilmesi.	R.KARABULUTLU	2018
YL Tezi (Master)	Anne babaların ve okul öncesi grubu çocuklarının çevre bilincine sahip olma durumlarının değerlendirilmesi.	F.KARACA	2018
YL Tezi (Master)	Okul öncesi eğitimi öğretmen adaylarının ekolojik ayak izlerinin ve çevre eğitim puanlarının incelenmesi.	A.F.YILDIZ	2018
Makale-Article	Mental images and method-technique approaches of teacher candidates of preschool teaching towards science education.	M.ALKIŞ KÜÇÜKAYDIN	2018
Makale-Article	Okul öncesi fen eğitimi alanında Türkiye’de yapılan lisansüstü tezlerin incelenmesi (2013-2017).	G.AVAR	2018
Makale-Article	Erken çocukluk döneminde fen eğitimine ilişkin okulöncesi öğretmenlerinin görüşleri.	A.BABAROĞLU	2018
Makale-Article	Preschool teachers' views on science education, the methods they use, science activities, and the problems they face.	Y.DOĞAN	2018
Makale-Article	Okul öncesi fen ve doğa eğitimi araştırmalarına ilişkin bir tarama çalışması: Türkiye örneği.	G.GÜNEŞ	2018
Makale-Article	Çocuklar için ekolojik ayak izi farkındalık ölçeği'nin (EKAY-Ö) geliştirilmesi.	H.GÜNGÖR	2018
Makale-Article	Ebeveynlerin, fene ve okul öncesi dönemde fen etkinliklerine yönelik görüşlerini belirleme ölçeği'nin geliştirilmesi.	Ç.ŞAHİN	2018
Makale-Article	Okul öncesi eğitimde uygulanan fen etkinliklerinin değerlendirilmesi.	Z.B.TAKAOĞLU	2018
Makale-Article	Preschool teachers in the context of teaching astronomy.	C.TÜRK	2018
Makale-Article	Okul öncesi öğretmenlerinin fen konularındaki uygulamalarının incelenmesi.	N.ÜLTAY	2018
Makale-Article	Okul öncesi öğretmenlerinin fen etkinliklerine yer verme durumlarının değerlendirilmesi.	S.YILDIZ	2018
Makale-Article	Okul öncesi eğitimde fen eğitimi temelinde gerçekleştirilen STEM uygulamalarının öğrenci, öğretmen ve veli açısından değerlendirilmesi.	D.AKGÜNDÜZ	2018
Doktora Tezi (PhD)	Okul öncesi eğitimde stem temelli aile katımlı bir mühendislik tasarım müfredatının geliştirilmesi.	A.ATA AKTÜRK	2019
Doktora Tezi (PhD)	Bir okul öncesi eğitim kurumunda ekolojik ayak izi uygulamaları ile sürdürülebilir yaşam fırsatlarının geliştirilmesi.	H.GÜNGÖR	2019
Doktora Tezi (PhD)	Okul öncesi ve temel fen eğitiminde robotik destekli ve basit malzemelerle yapılan stem uygulamalarının karşılaştırılması.	A.KOÇ	2019
YL Tezi (Master)	Bilim içerikli oyunlar yoluyla fen eğitiminin okul öncesi dönemi çocukları üzerindeki etkileri.	G.AKBABAOĞLU	2019
YL Tezi (Master)	STEM etkinliklerinin anaokuluna devam eden 6 yaş çocukların problem çözme becerilerine etkisi.	B.AKÇAY	2019
YL Tezi (Master)	Farklı okul öncesi eğitim modellerinin 54-66 aylık çocukların çevre tutum ve farkındalıklarına etkisi.	C.G.ALPARSLAN	2019
YL Tezi (Master)	Okul öncesi öğretmen adaylarının fen ve doğa etkinliklerinde pop-up book tekniğinin kullanımına ilişkin tutumları ve bu tutumları etkileyen faktörler	A.AYDIN	2019
YL Tezi (Master)	Okul öncesi dönemdeki fen etkinlikleri uygulamalarının çocuk resimleri ile incelenmesi.	S.BİLGİŞ	2019
YL Tezi (Master)	Doğa eğitiminin okul öncesi çocukların sosyal becerilerine etkisinin incelenmesi.	K.ÇİFTÇİ	2019
YL Tezi (Master)	Okul öncesi eğitimde drama temelli erken STEM programının bilimsel süreç ve yaratıcı düşünme becerilerine etkisi.	S.ÇİLENGİR GÜLTEKİN	2019
YL Tezi (Master)	Fen etkinliklerinin okul öncesi dönem çocuklarında çevre bilinci kazandırılmasına etkisi.	D.GEZGİN	2019
YL Tezi (Master)	Okul öncesi eğitimde STEM etkinliklerinin yaratıcılığa etkisi.	S.GÜLDEMİR	2019
YL Tezi (Master)	Okul öncesi öğretmenlerin aldıkları STEM eğitime ilişkin düşünceleri ve sınıf içi uygulamalarının incelenmesi.	Ş.KARAMETE GÖZCÜ	2019
YL Tezi (Master)	Beş yaş çocuklarına uygulanan iklim değişikliği programının çocukların iklim değişikliği kavramı hakkındaki görüşlerine etkisi.	C.MAVİŞ DEMİRCİOĞLU	2019

YL Tezi (Master)	Okul öncesi dönemdeki çocukların doğa algılarının resimler yoluyla incelenmesi	S.MOL	2019
YL Tezi (Master)	STEM odaklı olarak yeniden tasarlanan okulöncesi öğretmenliği bölümü fen ve matematik eğitimi dersinin uygulanma süreci: bir durum çalışması.	A.SAĞBAŞ	2019
YL Tezi (Master)	Reggio Emilia yaklaşımı temelli fen ve doğa etkinliklerinin uygulanması: bir eylem araştırması.	A.ŞAHİN	2019
Makale-Article	Okul öncesinde fen öğretimi, bilim ve teknoloji.	E.AKŞİN YAVUZ	2019
Makale-Article	MEB okul öncesi fen etkinliklerinin bilimsel süreç becerileri açısından incelenmesi.	D.BİNGÖL	2019
Makale-Article	Montessori yaklaşımı temelli STEM etkinliklerinin okul öncesi öğretmen adaylarının yaratıcılık becerilerine etkisi.	Z.ÇAKIR	2019
Makale-Article	Erken çocukluk döneminde çevre eğitimi içerikli resimli çocuk kitaplarının incelenmesi.	T.GÜZELYURT	2019
Makale-Article	Comparing predictors of teachers' education for sustainable development practices among eco and non-eco preschools.	D.KAHRİMAN PAMUK	2019
Makale-Article	Okul öncesi öğretmen adaylarının FETEMM farkındalıklarının değerlendirilmesi.	Z.KOYUNLU ÜNLÜ	2019
Makale-Article	Okul öncesi ağaç bilim okulu etkinlikleri.	P.KÖSEÖĞLU	2019
Makale-Article	Okul öncesi dönemde çocukların astronomi konusunda temel kavramlarla ilgili bilgilerinin incelenmesi	Ü.İ.ONBAŞILI	2019
Makale-Article	Okul öncesi öğretmenlerinin okullarındaki fen merkezine ve fen eğitimine yönelik bakış açıları.	A.T.ORHAN	2019
Makale-Article	Okul öncesi öğretmenlerinin yaratıcılık düzeyleri ile 60-72 aylık çocukların fen öğreniminin karşılaştırılması.	S.ÖLÇER	2019
Makale-Article	Okul öncesi dönemde fen eğitimi ve önemi.	T.K.ÖNAL	2019
Makale-Article	Okul öncesi öğretmenlerinin fen eğitimi süreçleri üzerine görüşlerinin incelenmesi.	A.SİMSAR	2019
Makale-Article	En iyi öğretmenim doğa: okul öncesinde doğa temelli eğitim uygulamaları projesi kapsamında hazırlanan öğretmen etkinlikleri.	Z.TEMİZ	2019
Makale-Article	Determination of preschool teachers' self-efficacy beliefs for science activities in preschool curriculum.	M.TUNCER	2019
Makale-Article	Okul öncesi dönemdeki çocukların bilim insanı olarak yapmak istediklerine ilişkin görüşlerinin resimler yoluyla incelenmesi.	E.YAZICI	2019

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