



# Okul Öncesi Öğretmen Adaylarının Çevreye Karşı Tutumlarının Çeşitli Değişkenler Açısından İncelenmesi


## Investigating the Attitudes of Preschool Teacher Candidates to the Environment in Terms of Various Variables

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### Özet:

Bu araştırmada okul öncesi öğretmen adaylarının çevreye yönelik tutumlarının çeşitli değişkenler açısından incelenmesi amaçlanmıştır. Araştırma, tarama modelinde betimsel bir çalışma olarak gerçekleştirilmiştir. Araştırmanın çalışma grubunu 2020-2021 eğitim öğretim yılında Kastamonu Üniversitesi Eğitim Fakültesi'ne kayıtlı okul öncesi öğretmen adayları oluşturmaktadır. Araştırmaya toplam 188 öğretmen adayı katılmıştır. Araştırmanın verilerini toplamak için Özata Yücel ve Özkan (2014) tarafından oluşturulan Çevresel Tutum Ölçeği kullanılmıştır. Veriler, T-testi ve tek yönlü varyans analizi (ANOVA) kullanılarak analiz edilmiştir. Veri analizinde anlamlılık düzeyi  $p < .05$  olarak kabul edilmiştir. Öğretmen adaylarının çevreye yönelik tutumlarının cinsiyetlerine, 'fen ve doğa etkinlikleri hazırlama' ve 'çevre eğitimi' derslerini alma durumlarına, sosyal medyada çevre ile ilgili konuları takip etme durumlarına, 'yaşam standartlarından ödün verme' ve 'kalkınma doğal kaynakları koruyarak mümkündür' fikrine sahip olma durumlarına göre ölçeğin çeşitli boyutlarında anlamlı düzeyde farklılaştığı ortaya çıkmıştır. Öğretmen adaylarının çevreye yönelik tutumlarının genel not ortalamalarına ve okul öncesi eğitim alma durumlarına göre anlamlı düzeyde farklılaşmadığı tespit edilmiştir.

**Anahtar Kelimeler:** Tutumlar, Çevre Eğitimi, Okul Öncesi Eğitim, Öğretmen Adayları

### Abstract:

In this research, it was aimed to examine the attitudes of pre-school teacher candidates towards environment in terms of various variables. The research was carried out as a descriptive study in a survey model. The research's study group consists of pre-school teacher candidates enrolled in the 2020-2021 academic year at Kastamonu University's Faculty of Education. The research included a total of 188 teacher candidates. 'The Environmental Attitude Scale', established by Özata Yücel and Özkan (2014), was used to collect data for the study. The data was analyzed using the T-test and one-way analysis of variance (ANOVA). The level of significance in the data analysis was accepted as  $p < .05$ . It has been revealed that the attitudes of the teacher candidates towards the environment differ significantly in various dimensions of the scale according to their gender, their status of taking "preparing science and nature activities course" and "environmental Education course", their status of following environmental issues on social media, and their status of having idea of "sacrificing living standards" and "development is possible by conserving natural resources". It was determined that the attitudes of the teacher candidates towards the environment did not differ significantly according to their grade point average (GPA) and status of taking pre-school education.

**Keywords:** Attitudes, Environment Education, Preschool Education, Teacher Candidates

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## 1. Introduction

People's habits have changed in parallel with society's living standards as industrialization has increased since the second half of the twentieth century. People have become more comfortable as technology has advanced, and they have become a more consuming entity. On the other hand, the worsening of the environment as a result of the world's growing population has elevated the environmental crisis to one of the world's most serious issues. According to Çimen (2013), humans damage the environment by damaging nature, leaving waste in the environment, consuming more than required, not using renewable energy resources, avoiding recycling, and wasting water. Although the consequences of human harm to the ecosystem were previously only expressed as a local problem, they have now expanded to global proportions. The consequences of destruction on humans include signs of depletion of natural resources, the gradual drying up of rivers, soil contamination, air pollution, and water pollution, to list a few. Furthermore, the spread of numerous diseases caused by environmental contamination, as well as the extinction of some animals and plants, are all effects of human-caused environmental damage (Yurttaş & Çağlar, 2019). These environmental issues not only restrict the physical living space of humans but also have biological consequences. Biological consequences include the effects of various infectious viruses and microbes on human health due to unknown causes, as well as the failure of people seeking care to get rid of these pests to provide the required raw material due to environmental destruction. Human beings that are responsible for environmental destruction must resolve the issue of making the environment habitable. Humans need to be environmentally aware to deal with and solve environmental issues (Erten, 2012). A good environmental education is also necessary for the formation of individuals with environmental awareness (Ozoner, 2004; cited in Keleş, Uzun & Varnacı-Uzun, 2010).

Environmental education is a lifelong learning method aimed at providing a livable world for future generations, raising environmental consciousness in individuals, and gaining information, skills, values, attitudes, and behaviors that will help solve environmental and environmental problems (Vaughan, Gack, Solorazano & Ray, 2003). The primary goal of environmental education, according to Şimşekli (2004), is to conserve nature and natural resources. Environmental education, according to Hungerford and Peyton (1976), is aimed at developing environmentally literate individuals who are aware of global environmental issues and actively seek solutions. More comprehensively, Moseley (2000) asserted that environmental education is an interdisciplinary dimension, and it is a continuous education that aims to create an environmentally conscious world population, will be active in solving environmental problems, and who can act under the responsibility of their social duties with the necessary knowledge, skills, attitudes, and motives about the environment. Again, Pooley and O'Connor (2000) emphasize that environmental education is not only providing information to the individual but also an educational process that will enable the individual to show positive behavior towards the environment shows that this education is very significant.

Individuals should first be instilled with environmental knowledge to develop environmentally sustainable habits, and then continued training should be provided to ensure consistency in attitudes and behaviors. Individuals must be educated from an early age to improve environmentally-friendly behaviors. Environmental education should begin at a young age, according to Karataş (2013), to pass on the environment to future generations and establish a livable world. The attitudes and behaviors that a child acquires throughout his or her childhood years will lead him or her throughout his or her life. For this reason, it can be stated that environmental education given from the pre-school period will be more permanent for individuals. For this reason, environmental awareness and a positive attitude towards the environment acquired from an early age are very important (Cevher-Kalburan, 2014; Koçak Tümer & Temel, 2018). Additionally, because of today's urbanization, many children live far from nature and cannot acquire environmental awareness much in real life. For this reason, it is essential to have an environmental education system designed in schools starting from the pre-school period.

The child needs to obtain education in cognitive, social and emotional, psychomotor, self-care skills, and language development during the preschool years. Environmental education ensures that a child's interest in nature is prompted and that the child's relationship with the natural world supports these developmental areas (Yayla-Ceylan & Ülker, 2014). Preschool teachers play a crucial role in providing environmental education to children during the preschool years. Preschool teachers would have trained in environmental education to ensure the training of environmentally conscious individuals. It is vital that teacher candidates, who are the future pre-school teachers, grow up with this sense of responsibility. For this reason, it is advised that preschool teachers take environmental science and nature courses during their undergraduate period in various studies (Güzelyurt & Özkan, 2018; Karademir, Uludağ & Cingi, 2017).

According to the findings of Güzelyurt and Özkan (2018), preschool teachers suggest that environmental education is significant, but that they lack the required knowledge. The findings of this study indicate that further research is needed to develop preschool teachers' and teacher candidates' environmental awareness. It is important to assess the current knowledge, awareness, and attitudes of pre-school teachers and teacher candidates to guide the environmental education that will be provided to them. There have been studies that look at the environmental knowledge levels of teacher candidates based on a variety of factors (Akçay & Pekel, 2017; Diken & Sert Cıbık, 2009; Kahyaoglu, 2011; Kışoğlu, Yıldırım, Salman & Sülün, 2016; Öztürk & Zayimoğlu Öztürk, 2015; Sadık, 2013). However, given the importance of providing environmental education to individuals beginning in the pre-school years, studies (Dinler, Simsar & Doğan, 2020; Güşta Şahin & Doğu, 2018; Karademir, Uludağ & Cingi, 2017) attempting to assess the environmental awareness and attitudes of pre-school teacher candidates are inadequate compared to other branches (Kandır, Yurt, & Kalburan, 2012). Furthermore, no national-level analysis was identified as a result of the literature review to assess if the pre-school science and nature activities preparation course influenced pre-school teacher candidates' environmental attitudes. This research is important because it contributes to closing these gaps in the literature.

It was aimed to examine the attitudes of pre-school teacher candidates towards the environment in terms of various variables according to various variables in this research. In this context, answers were sought for the following research problems:

1. Do pre-school teacher candidates' environmental attitudes differ significantly according to gender?
2. Do pre-school teacher candidates' environmental attitudes differ significantly according to taking a "preparing science and nature activities course"?
3. Do pre-school teacher candidates' environmental attitudes differ significantly according to taking an "environmental education course"?
4. Do pre-school teacher candidates' environmental attitudes differ significantly according to the following environmental issues on social media?
5. Do pre-school teacher candidates' environmental attitudes differ significantly according to the GPA?
6. Do pre-school teacher candidates' environmental attitudes differ significantly according to the status of having the "sacrificing living standards" idea?
7. Do pre-school teacher candidates' environmental attitudes differ significantly according to the status of having "development is possible by conserving natural resources" idea?
8. Do pre-school teacher candidates' environmental attitudes differ significantly according to the pre-school education status?

## 2. Method

### Study Design

The research was carried out as a descriptive study in a survey model. The survey model is the research that tries to describe the opinions, attitudes, and knowledge levels of the participants about a phenomenon or event (Fraenkel & Wallen, 2006; Tanrıoğen, 2009).

## Study Group/Participants

The research's study group consists of pre-school teacher candidates enrolled in the 2020-2021 academic year at Kastamonu University's Faculty of Education. The research included a total of 188 teacher candidates. Table 1 shows the information on the study group.

**Table-1: Information About the Study Group**

		N	%
Gender	Women	150	79,78
	Men	38	20,21
Taking "preparing science and nature activities course"	Yes	145	77,12
	No	43	22,87
Taking "environmental education course"	Yes	96	51,06
	No	92	48,93
Grade point average (GPA)	2.01-3.00	73	38,82
	3.01-4.00	115	61,17
Having the "sacrificing living standards" idea	Yes	133	70,74
	Partially	55	29,25
Preschool education status	Yes	70	37,23
	No	117	62,23
Following environmental issues in social media	Yes	100	53,19
	Sometimes	55	29,25
	No	33	17,55
Having the "development is possible by conserving natural resources"idea	Yes	146	77,65
	Partially	42	22,34
	Total	188	100

## Data Collection

The Environmental Attitude Scale', established by Özata Yücel and Özkan (2014), was used to collect data for the study. The scale consists of two subscales and measures four dimensions (behavior, emotion, thought, willingness to act) of environmental attitude. The first subscale consists of 14 items measuring the behavioral dimension of the scale, and one of these items works in reverse. The second subscale consists of 26 items and one of these items works in reverse. 7 of the 26 items measure the dimension of emotion, 8 of them measure the dimension of thought, and 6 of them measure the dimension of willingness to act. The scale is in 5-point Likert type as "I strongly disagree", "I disagree", "neutral", "I agree", and "I strongly agree". In the study in which the scale was developed, Cronbach's Alpha values were calculated as 0.85 for the behavior dimension, 0.82 for the emotion dimension, 0.75 for the thought dimension, and 0.71 for the willingness to act dimension. In the study in which the scale was developed, Cronbach Alpha values were calculated as 0.85 for the behavior dimension, 0.82 for the emotion dimension, 0.75 for the thought dimension, and 0.71 for the willingness to act dimension. The Cronbach alpha value for the entire second subscale was calculated as 0.88. In this study, Cronbach's Alpha values were calculated as 0.83 for the behavior dimension, 0.85 for the emotion dimension, 0.79 for the thought dimension, and 0.76 for the willingness to act dimension. In this study, the Cronbach Alpha value for the entire second subscale was calculated as 0.86. Since Cronbach's Alpha values were greater than 0.70 in all dimensions, it was decided that the scale was reliable for use in this study.

## Data Analysis

A statistical package program was used to analyze the data collected in the analysis. To begin, skewness and kurtosis values were calculated to see if the data had a normal distribution. The skewed value of the data collected was -.834, and the kurtosis value was 1.411. The data can be considered to have a normal distribution based on these values (Tabachnick & Fidell, 2013). The data was analyzed using the T-test and one-way analysis of variance (ANOVA). The level of significance in the data analysis was accepted as  $p < .05$ .

### 3. Findings

#### The Change of Preschool Teacher Candidates' Environmental Attitudes by Gender

Results regarding whether preschool teacher candidates' environmental attitudes differ significantly according to gender are given in Table 2.

**Table-2:** T-Test Results of the Teacher Candidates' Scores from the Environmental Attitude Scale According to the Gender Variable

Environmental Attitude	Gender	N	X	S	sd	t	p
Behavior	Women	150	3,81	,556	186	2,48	<b>,014</b>
	Men	38	3,56	,552			
Emotion	Women	150	4,82	,334	186	3,45	<b>,001</b>
	Men	38	4,58				
Thought	Women	150	1,35	,434	186	2,14	<b>,033</b>
	Men	38	1,52				
Willingness to Act	Women	150	3,93	,540	186	1,86	,063
	Men	38	3,75	,554			
Total	Women	150	3,47	,326	186	2,38	<b>,015</b>
	Men	38	3,33	,298			

The total scores on the environmental attitude scale of teacher candidates vary significantly depending on gender,  $t(186) = 2.38, p < .05$ . Female teacher candidates have a significant difference (3,47). In the behavior dimension, teacher candidates' environmental attitudes vary significantly by gender,  $t(186) = 2.48, p < .05$ . Female teacher candidates have a significant difference (3,81). In the emotion dimension, teacher candidates' attitudes toward the world differ significantly by gender,  $t(186) = 3,48, p < .05$ . Female teacher candidates have a significant difference (4,82). The significant difference is in favor of male teacher candidates (1,52). No significant difference was observed in the scores of teacher candidates in the willingness to act dimension of the attitude.

#### The Change of Preschool Teacher Candidates' Environmental Attitudes According to the Status of Taking "Preparing Science and Nature Activities Course"

Findings of whether pre-school teacher candidates' environmental attitudes differ significantly according to their taking a "preparing science and nature activities course" status are included in Table 3.

**Table-3:** T-Test Results of the Teacher Candidates' Scores from the Environmental Attitude Scale According to the Status of Taking "Preparing Science and Nature Activities Course"

Environmental Attitude	Status of Taking Course	N	X	S	sd	t	p
Behavior	Yes	145	3,79	,558	186	1,65	,100
	No	43	3,63	,567			
Emotion	Yes	145	4,83	,324	186	4,161	<b>,000</b>
	No	43	4,56	,495			
Thought	Yes	145	1,31	,384	186	4,02	<b>,000</b>
	No	43	1,62	,581			
Willingness to Act	Yes	145	3,95	,537	186	2,5	<b>,013</b>
	No	43	3,72	,546			
Total	Yes	146	3,46	,321	186	1,56	,118
	No	43	3,37	,332			

Teacher candidates' environmental attitudes differ significantly depending on whether they are taking "preparing science and nature activities course",  $t(186) = 4.161, p < .05$ . Teacher candidates who take the course have a significant difference (4,83). In the dimension of thought, teacher candidates' environmental attitudes differ significantly depending on whether or not they take a course on preparing science and nature tasks,  $t(186) = 4.02, p < .05$ . Teacher candidates who take the course have

a significant difference (1,62). The teacher candidates' environmental attitudes in the dimension of willingness to act differ significantly according to their taking the "preparing science and nature activities course",  $t(186) = 2,5$   $p < .05$ . The significant difference is in favor of teacher candidates' who take the course (3,95). The status of taking the "preparing science and nature activities course" does not show a significant difference in the scores of the candidates in the total environmental attitude scale and the behavior dimension.

### Changes in Preschool Teacher Candidates' Environmental Attitudes According to Their Status of Taking Environment Course

Table 4 shows whether pre-school teacher candidates' environmental attitudes differ significantly according to their status of taking environment course.

**Table-4:** T-Test Results of the Teacher Candidates' Scores from the Environmental Attitude Scale According to the Taking Environment Course Status Variable

Environmental Attitude	Status of Taking Course	N	X	S	sd	t	p																																												
Behavior	Yes	96	3,93	,510	186	4,37	<b>,000</b>																																												
	No	92	3,58	,565				Emotion	Yes	96	4,82	,316	186	1,83	,069	No	92	4,72	,442	Thought	Yes	96	1,33	,384	186	-1,70	,090	No	92	1,44	,512	Willingness to Act	Yes	96	4,06	,465	186	4,30	<b>,000</b>	No	92	3,73	,577	Total	Yes	96	3,53	,290	186	4,13	<b>,000</b>
Emotion	Yes	96	4,82	,316	186	1,83	,069																																												
	No	92	4,72	,442				Thought	Yes	96	1,33	,384	186	-1,70	,090	No	92	1,44	,512	Willingness to Act	Yes	96	4,06	,465	186	4,30	<b>,000</b>	No	92	3,73	,577	Total	Yes	96	3,53	,290	186	4,13	<b>,000</b>	No	92	3,35	,333								
Thought	Yes	96	1,33	,384	186	-1,70	,090																																												
	No	92	1,44	,512				Willingness to Act	Yes	96	4,06	,465	186	4,30	<b>,000</b>	No	92	3,73	,577	Total	Yes	96	3,53	,290	186	4,13	<b>,000</b>	No	92	3,35	,333																				
Willingness to Act	Yes	96	4,06	,465	186	4,30	<b>,000</b>																																												
	No	92	3,73	,577				Total	Yes	96	3,53	,290	186	4,13	<b>,000</b>	No	92	3,35	,333																																
Total	Yes	96	3,53	,290	186	4,13	<b>,000</b>																																												
	No	92	3,35	,333																																															

Teacher candidates' environmental attitudes differ significantly in total scores of the scale depending on whether or not they are taking an environment course,  $t(186) = 4.13$   $p < .05$ . The significant difference is in favor of those who take environmental courses (3,53). In the behavior dimension, teacher candidates' environmental attitudes differ significantly depending on whether or not they are taking an environment course,  $t(186) = 4.37$   $p < .05$ . Teacher candidates who take the course have a significant difference (3,93). Teacher candidates' environmental attitudes differ significantly in the dimension of willingness to act depending on whether they take an environment course,  $t(186) = 4.30$   $p < .05$ . The significant difference is in favor of teacher candidates who take the course (4,06). Teacher candidates' environmental attitudes in the dimension of willingness to act differ significantly according to taking environment-course,  $t(186) = 4.30$   $p < .05$ . The significant difference is in favor of teacher candidates who take the course (4,06). No significant difference was observed in the scores of the teacher candidates in the emotion and thought dimensions of the scale.

### The Change of Preschool Teacher Candidates' Environmental Attitudes According to Their Status of Following the Environmental Issues in Social Media

The results regarding whether pre-school teacher candidates' environmental attitudes differ significantly according to their status of following environmental issues on social media are shown in Table 5.

**Table-5:** Descriptive Statistics by Status of Following Environmental Issues in Social Media from the Environmental Attitude Scale

Environmental Attitude	Following Environmental Issues in Social Media	N	X	SS
Behavior	Yes	100	3,99	,444
	Sometimes	55	3,61	,521
	No	33	3,76	,614
Emotion	Yes	100	4,82	,308
	Sometimes	55	4,74	,359
	No	33	4,65	,576
Thought	Yes	100	1,37	,414

	Sometimes	55	1,38	,460
	No	33	1,45	,558
Willingness to Act	Yes	100	4,060	,474
	Sometimes	55	3,806	,475
	No	33	3,580	,686
Total	Yes	100	3,57	,257
	Sometimes	55	3,36	,287
	No	33	3,20	,389

**Table-6: ANOVA Results on the Environmental Attitude Effect of Following Environmental Issues in Social Media**

Environmental Attitude	Source of variance	Sum of Squares	sd	Average of Squares	f	p	Significant difference
Behavior	Between groups	12,995	2	6,497	25,93	,000	Yes-No, No-Sometimes
	Within groups	46,340	185	,250			
	Total	59,334	187				
Emotion	Between groups	,787	2	,398	2,69	,071	-
	Within groups	27,046	185	,146			
	Total	27,833	187				
Thought	Between groups	,152	2	,076	,37	,695	-
	Within groups	38,464	185	,208			
	Total	38,616	187				
Willingness to Act	Between groups	6,407	2	3,204	11,95	,000	Yes-No, Sometimes-No
	Within groups	49,578	185	,268			
	Total	55,985	187				
Total	Between groups	3,907	2	1,953	22,74	,000	Yes-Sometimes Yes-No, Sometimes-N
	Within groups	15,891	185	,086			
	Total	19,798	187				

In the total scale,  $f(2, 185) = 22.74, p < .05$ . The results of the study indicate a significant difference in the teacher candidates' environmental attitudes in terms of following environmental issues on social media. People who track environmental issues on social media (3,57) and sometimes (3,36) have more optimistic attitudes about the environment than those who do not (3,20).  $f(2, 185) = 25.93, p < .05$ . The study findings indicate a significant difference in the behavior dimension of the teacher candidates' environmental attitudes in terms of following environmental issues on social media. Furthermore, those who follow environmental issues on social media (3.99) and those who do not (3.76) have more optimistic views toward the environment than those who are sometimes found on social media (3.61). The results of the analysis show that in the dimension of willingness to act, teacher candidates' environmental attitudes differ significantly depending on their status of following environmental issues on social media,  $f(2, 185) = 11,954, p < .05$ . Furthermore, in terms of willingness to act against the environment, those who follow environmental issues on social media (4.06) and sometimes those who follow (3.80) are more positive than those who do not follow (3.58). There was no significant difference in the scores of the teacher candidates in the emotion and thought dimensions of the scale.

### The Change of Preschool Teacher Candidates' Environmental Attitudes According to GPA

Results about whether pre-school teacher candidates' environmental attitudes differ or not according to the GPA are given in Table 7.

**Table-7: T-Test Results According to the GPA of the Scores the Teacher Candidates Got from the Environmental Attitude Scale**

Environmental Attitude	GPA	N	X	S	sd	t	p
Behavior	2.01-3.00	73	3,67	,600	186	-1,61	,107
	3.01-4.00	115	3,81	,534			
Emotion	2.01-3.00	73	4,66	,432	186	-3,27	,001
	3.01-4.00	115	4,84	,335			

Thought	2.01-3.00	73	1,47	,497	186	2,09	,037
	3.01-4.00	115	1,33	,418			
Willingness to Act	2.01-3.00	73	3,77	,532	186	-2,49	,014
	3.01-4.00	115	3,97	,543			
Total	2.01-3.00	73	3,38	,351	186	-1,93	,055
	3.01-4.00	115	3,48	,303			

In the emotion dimension, teacher candidates' environmental attitudes differ significantly according to their GPA,  $t(186) = 3.27$   $p < .05$ . There is a significant difference in favor of teacher candidates with a 3.01-4.00 GPA (4.84). In the thought dimension, teacher candidates' environmental attitudes differ significantly depending on their GPA,  $t(186) = 2.09$   $p < .05$ . Teacher candidates with GPA between 2.01-3.00 have a significant difference (1.47). In the dimension of willingness to act, teacher candidates' environmental attitudes differ significantly according to their GPA,  $t(186) = 2.49$   $p < .05$ . The significant difference is in favor of teacher candidates whose GPA is between 3.01-4.00 (3,97). There is no significant difference in the scores of the teacher candidates in the behavior dimension of the scale.

### The Change of Preschool Teacher Candidates' Environmental Attitudes According to Status of Having "Sacrificing Living Standards" Idea

Results about whether pre-school teacher candidates' environmental attitudes differ or not according to the having the idea of sacrificing living standards are given in Table 8.

**Table-8:** T-Test Results of The Teacher Candidates' Scores From the Environmental Attitude Scale According to the Variable of Sacrificing Living Standard

Environmental Attitude	Sacrificing Living Standard	N	X	S	sd	t	p
Behavior	Yes	133	3,92	,508	186	6,99	,000
	Partially	55	3,36	,488			
Emotion	Yes	133	4,81	,341	186	2,41	,017
	Partially	55	4,67	,464			
Thought	Yes	133	1,38	,448	186	-,069	,940
	Partially	55	1,39	,473			
Willingness to Act	Yes	133	4,00	,514	186	4,37	,000
	Partially	55	3,64	,540			
Total	Yes	133	3,53	,296	186	6,78	,000
	Partially	55	3,22	,280			

In total, teacher candidates' environmental attitudes indicate a significant difference depending on the status of sacrificing life standards,  $t(186) = 6.78$   $p < .05$ . Teacher candidates who replied yes have a significant difference (3,53). In the behavior dimension, teacher candidates' environmental attitudes differ significantly depending on whether or not they have an idea of sacrificing life standards,  $t(186) = 6.99$   $p < .05$ . Teacher candidates who replied yes have a significant difference (3,92). Teacher candidates' emotional attitudes toward the environment differ significantly depending on whether they have the idea of sacrificing life standards,  $t(186) = 2.41$   $p < .05$ . Teacher candidates who replied yes have a significant difference (4,81). Teacher candidates' environmental attitudes differ significantly according to having sacrificing life standards idea in the dimension of willingness to act,  $t(186) = 4.37$   $p < .05$ . The significant difference is in favor of teacher candidates who answered yes (4,00). In the thought dimension of the scale, the scores of the teacher candidates do not differ significantly according to the state of having the idea of sacrificing living standards.

### The Change of Preschool Teacher Candidates' Environmental Attitudes According to Their Status of Having "Development is Possible by Conserving Natural Resources" Idea

The results related to the change of preschool teacher candidates' environmental attitudes according to their status of having the idea that "development is possible by protecting natural resources" are given in Table 9.



**Table-9:** T-Test Results of The Preservice Teachers' Scores from the Environmental Attitude Scale According to the Variable that Status of Having "Development is Possible by Conserving Natural Resources" Idea

Environmental Attitude	D.P.C.N.R Thought	N	X	S	sd	t	p
Behavior	Yes	146	3,82	,551	186	2,972	<b>,003</b>
	Partially	42	3,53	,551			
Emotion	Yes	146	4,83	,340	186	4,24	<b>,000</b>
	Partially	42	4,56	,457			
Thought	Yes	146	1,34	,422	186	2,39	<b>,018</b>
	Partially	42	1,53	,530			
Willingness to Act	Yes	146	3,97	,507	186	3,70	<b>,000</b>
	Partially	42	3,63	,599			
Total	Yes	146	3,48	,307	186	3,34	<b>,001</b>
	Partially	42	3,30	,348			

In the total scale, teacher candidates' attitudes toward the environment indicate a significant difference when it comes to the idea that "development is possible by preserving natural resources",  $t(186) = 3.34$   $p < .05$ . There is a significant difference for teacher candidates who replied yes (3,48). In the behavior dimension, it can be shown that teacher candidates' attitudes toward the environment differ significantly depending on whether they consider that "development is possible by conserving natural resources",  $t(186) = 2,972$   $p < .05$ . Teacher candidates who replied yes have a significant difference (3,82). In the emotion dimension, teacher candidates' attitudes toward the environment differ significantly depending on whether they consider that "development is possible by conserving natural resources",  $t(186) = 4.24$   $p < .05$ . Teacher candidates who replied yes have a significant difference (4,83). In the dimension of thought, teacher candidates' attitudes toward the environment differ significantly depending on whether they consider that "development is possible by conserving natural resources",  $t(186) = 2.39$   $p < .05$ . Teacher candidates who replied yes have a significant difference (1,34). The attitudes of teacher candidates towards the environment in the dimension of willingness to act differ significantly according to the thought that "development is possible by conserving natural resources",  $t(186) = 3,70$   $p < .05$ . The significant difference is in favor of teacher candidates who answered yes (3,97).

### The Change of Preschool Teacher Candidates' Environmental Attitudes According to Their Preschool Education Status

The results related to the change of preschool teacher candidates' environmental attitudes according to their preschool education status are given in Table 10.

**Table-10:** T-Test Results of The Teacher Candidates' Scores From the Environmental Attitude Scale According to the Preschool Education Variable

Environmental Attitude	Taking Preschool Education	N	X	S	sd	t	p
Behavior	Yes	70	3,74	,599	185	-,356	,722
	No	117	3,77	,544			
Emotion	Yes	70	4,76	,423	185	-,366	,715
	No	117	4,78	,364			
Thought	Yes	70	1,40	,528	185	,208	,836
	No	117	1,38	,407			
Willingness to Act	Yes	70	3,90	,634	185	-,043	,965
	No	117	3,90	,490			
Total	Yes	70	3,43	,353	185	-,280	,780
	No	117	3,45	,309			

The scores of the teacher candidates from the scale do not differ significantly according to the pre-school education variable.

#### 4. Conclusion, Discussion and Suggestions

The preschool teacher candidates' environmental attitudes were investigated using a variety of variables in this research. Environmental attitudes of teacher candidates were investigated in the study by categorizing them as behavior, emotions, thoughts, and willingness to act. According to the gender factor, there is a significant difference in behaviors and emotions among preschool teacher candidates. Female teacher candidates were found to have more advanced behavioral and emotional attitudes toward the environment than male candidates. This finding is consistent with the findings of other studies (Akçay, Halmatov & Ekin, 2017; Arık & Yılmaz, 2017; Aydın & Ünalı 2013; Gürbüz, Çakmak & Derman, 2013; Kahyaoğlu & Özgen, 2012; Karademir, Uludağ & Cingi, 2017; Silkü, 2011). In their research, which examined the affective tendencies of different undergraduate students toward the environment, Aksoy and Karatekin (2011) discovered that female students had more effective tendencies towards the environment than male students. Similarly, Güşta Şahin and Doğu (2018) found that female teacher candidates had more advanced environmental attitudes than male teacher candidates as a result of their study. However, studies in the literature have shown that teacher candidates' environmental attitudes are unaffected by gender (Altınöz, 2010; Gürbüz & Çakmak, 2012; Kışoğlu, Yıldırım, Salman & Sülün, 2016). In another result of the study, it was found that male teacher candidates' environmental attitudes were higher than female candidates in terms of thought. Similarly, Teksöz, Şahin, and Erpınar (2010) found that female teacher candidates were more interested in environmental problems, but their environmental knowledge was lower than male teacher candidates. On the other hand, in the study, no significant difference was found in the attitudes of teacher candidates to act towards the environment according to gender.

The differentiation in the teacher candidates' environmental attitudes according to their status of taking the "preparing science and nature activities course" during their undergraduate period was investigated in the study, and a significant difference was found in favor of the candidates who took these courses in the emotional dimensions of the teacher candidates' attitudes in the emotion, thought and willingness to act dimensions of the environmental attitude. There was no significant difference in the behavioral dimensions of the environmental attitude. It was found that teacher candidates who took an environmental course during their undergraduate years had more positive attitudes toward behavior and willingness to act than those who did not. It was discovered that taking an environmental course had no significant impact on the scale's thought and emotion dimensions. It has been determined that taking an environmental education course creates a significant difference in the attitudes of teacher candidates in terms of environmental behavior and willingness to engage in action. In a study of science teacher candidates, Yılmaz, Karakaya, Çimen, and Adıgüzel (2019) found that taking environmental courses resulted in a significant difference in the prospective teachers' ecological citizenship levels. Teacher candidates who took the environmental course had higher levels of ecological citizenship than those who did not. Kahyaoğlu, Daban, and Yangın (2008), on the other hand, found that taking an environment course did not make a significant difference in teacher candidates' environmental attitudes. This finding is consistent with Sadık's (2013) findings. Pre-school teacher candidates' behavior levels regarding sustainable environment did not vary significantly in their undergraduate science education and environmental education courses, according to Karademir, Uludağ, and Cingi (2017). In his analysis of teacher candidates' environmental attitudes, Uyanık (2017) discovered that science teacher candidates had a more positive attitude toward the environment than pre-school teacher candidates. The researcher evaluated this situation in the context of the undergraduate course content of the teacher candidates participating in the study and interpreted that environmental education is compulsory in the science-teaching department, but there is no such course in the preschool teaching department. As a result of another study, Karatekin and Akyoy (2012) stated that the environmental literacy levels of teacher candidates who have a sense of curiosity about environmental issues, who take environmental courses during their undergraduate period, and who participate in nature activities more actively, are at a higher level. It has been discovered that pre-school teacher candidates' behaviors in following environmental issues on social media have a significant impact on their ability to act and environmental behavior. There is a significant difference in favor of candidates who use social media. According to the findings of Uysal (2018), teacher candidates' posts about the environment on social media have a positive impact on the participation and responsibility dimension of their ecological citizenship. It was concluded that the following environmental issues did not make a significant difference in pre-school teacher candidates' environmental thoughts and feelings. Similarly, Kışoğlu (2009) concluded in a study he conducted that

teacher candidates' ways of obtaining information about the environment did not make a significant difference in their environmental literacy levels. In the results of some studies, it is emphasized that membership in environmental-related voluntary organizations or student clubs is an important factor in the development of environmentally sensitive behaviors in teacher candidates (Çimen, Yılmaz & Çimen, 2011; Sadık, 2013).

When examining the results about whether pre-school teacher candidates' environmental attitudes differ or not according to the GPA, it is clear that those with a high-grade average (3.01-4.00) have better environmental feelings and are more willing to act. According to the findings of their research, Timur and Yılmaz (2011) indicated that as the GPA rises, so does the level of environmental knowledge. Another result of the study is that candidates who have a medium average (2.01-3.00) are more advanced in their environmental attitudes. In addition, it was determined that the overall GPA did not make a significant difference in the environmental attitudes of the teacher candidates. This result of the research is similar to the results of Güşta-Şahin and Doğu (2018). In their studies conducted with pre-school teacher candidates, the researchers found that the GPA did not make a significant difference in the behaviors of the candidates towards the environment, but that there was a significant difference in their attitude towards environmental problems. In the same study, it was concluded that increasing attitudes towards the environment would increase positive behavior towards the environment.

The research looked at how pre-school teacher candidates' attitudes toward the environment differed depending on whether they were "sacrificing living standards". According to the results, there was a significant difference in attitudes toward environmental behavior, emotions, and willingness to act in support of the candidates who had this perspective. It has been determined that the idea of "sacrificing living standards" has no significant effect on thought dimension of the environmental attitude.

In the research, the differentiation of pre-school teacher candidates' environmental attitudes was examined according to their status of having the "development is possible by conserving natural resources" idea. According to the findings obtained, it was determined that the teacher candidates who had this idea were more ahead of their attitudes towards the environment than their behavior, emotion, and willingness to act. There was a significant difference in favor of those who partially defended the idea of "development is possible by conserving natural resources" in the dimension of thought in the environmental attitudes of teacher candidates.

The pre-school education status of the teacher candidates did not make a significant difference in their environmental attitudes, according to the study. In another study, it was found that secondary school students' awareness of recycling and energy resources was unaffected by whether or not they had received pre-school education (Yurttaş, 2016). However, another study found that pre-school education made a significant difference in the ecological citizenship rate of teacher candidates studying to be primary school teachers (Uysal, 2018). Uysal (2018) claimed that there is a significant difference in favor of those who receive preschool education in the dimensions of participation, sustainability, and responsibility in ecological citizenship levels, and emphasized that there is no significant difference in the dimensions of rights and justice.

As a result, since it is clear that both the "preparing science and nature activities course" and the "environment course" have an effect on teacher candidates' attitudes toward the environment, it is thought that by popularizing these courses, the number of teacher candidates' with a positive attitude toward the environment can be increased. It is advised that at least one of these courses be made mandatory in undergraduate programs. Undergraduate education should focus on imparting in teacher candidates' the idea that sacrificing living standards on behalf of environmental protection and protecting natural resources would enable the country to develop.

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