DOI:10.25092/baunfbed. 1576604 *J. BAUN Inst. Sci. Technol., 27(2), 443-463, (2025)*

Investigation of the environmental consciousness levels of teachers and administrators in Bitlis Province

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Geliş Tarihi (Received Date): 31.10.2024
Kabul Tarihi (Accepted Date): 19.02.2025

Abstract

One of the current and significant problems of this age is the issue of environmental pollution, which is growing day by day and causing the emergence of other problems. People's consciousness of environmental issues affects the continuation or solution of this problem. This research was studied to investigate the environmental consciousness of teachers and administrators working in schools in Bitlis, Türkiye. The study was studied with 783 teachers and administrators during the spring semester of the 2021-2022 academic year. In the research, a "Demographic Knowledge Form" and the "Environmental Consciousness Scale" were used as data collection tools. Looking at some findings obtained from the research; it was determined that 89.02% of the participants were university graduates; 87.87% were teachers; 91.95% were not members of a non-governmental organization aimed at protecting the environment; 97.83% were interested in environmental issues, and most lived in a small city (78.29%). The level of environmental awareness has been assessed in the subdimensions of attitude, knowledge, and behavior. To determine the level of environmental consciousness, a Likert-type scale was used for analysis, revealing a high level of environmental consciousness (M = 3.81, SD = 0.33). As a result, it was determined that the participants were sensitive to the pollution in their environment and that although they had environmental knowledge and attitudes, they were deficient in turning it into behavior.

Keywords*: Bitlis, environment, environmental consciousness, teacher, administrator*

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Bitlis ilindeki öğretmenler ve yöneticilerin çevre bilinci düzeylerinin incelenmesi

Öz

Çağımızın güncel ve önemli sorunlarından bir tanesi de her geçen gün artan ve diğer sorunların ortaya çıkmasına neden olan çevre kirliliği problemidir. İnsanların çevresel konulara dair bilinçleri, bu sorunun devamlılığını veya çözümünü etkilemektedir. Bu araştırma, Bitlis ilindeki okullarda çalışan öğretmenler ve yöneticilerin çevre bilinç düzeyini incelemek amacıyla gerçekleştirilmiştir. Araştırma, 2021-2022 akademik yılının bahar döneminde 783 öğretmen ve yönetici ile yapılmıştır. Araştırmada veri toplama araçları olarak "Demografik Bilgi Formu" ve "Çevresel Bilinç Ölçeği" kullanılmıştır. Araştırmadan elde edilen bazı bulgulara bakıldığında; katılımcıların %89,02'sinin üniversite mezunu olduğu; %87,87'sinin öğretmen olduğu; %91,95'inin çevreyi korumaya yönelik bir sivil toplum kuruluşuna üye olmadığı; %97,83'ünün çevresel konulara ilgi duyduğu ve çoğunluğunun küçük bir şehirde yaşadığı (%78,29) tespit edilmiştir. Katılımcıların, çevre bilinci düzeyi, tutum, bilgi ve davranış alt boyutlarında değerlendirilmiştir. Çevre bilinci düzeyini belirlemede, Likert tipi ölçek kullanılarak analiz edilmiş ve çevre bilinci seviyesi yüksek bulunmuştur (M=3.81, SD=0.33). Sonuç olarak; katılımcıların, çevrelerindeki kirliliğe duyarlı oldukları, çevre bilgisi ve tutumlarının olmasına rağmen davranışa dönüştürülmesi konusunda eksikliklerinin olduğu tespit edilmiştir.

***Anahtar kelimeler**: Bitlis, çevre, çevre bilinci, öğretmen, yönetici*

1. Introduction

Humans exploit natural resources, pollute the environment and damage nature. Humans, who do not have a sufficient understanding of nature, are in a difficult process, together with other living beings, as a result of their actions. This process is becoming increasingly severe and painful, manifesting itself in pollution, epidemics, disasters, etc. The root causes of many of the environmental problems we face today are the exploitation of nature by man, along with industrialisation [1, 2]. Environmental problems manifest themselves as problems that reduce the quality of life and sometimes threaten existence [3]. In short, for a livable planet, the necessary steps must be taken as soon as possible, otherwise humans, along with other living beings, will also face extinction. This problem can only be solved by individuals who are environmentally conscious (Figure 1). Environmental education is not only the responsibility of environmental educators. The protection of the environment should be the duty of all of us. A connection should be established between the information provided in all subjects and the conservation of the environment [4].

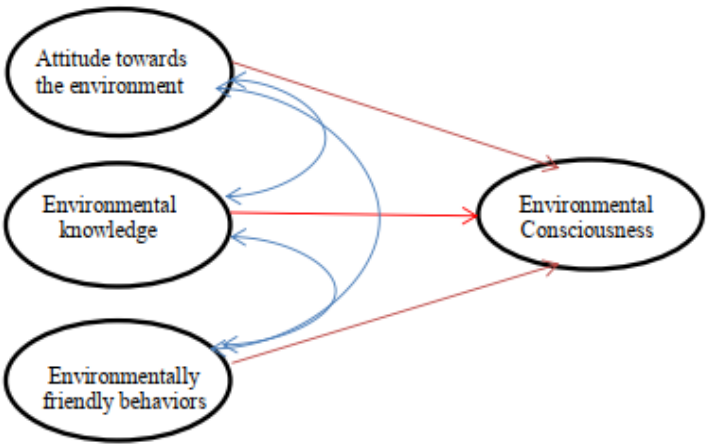

Figure 1. Environmental consciousness and the attitudes, knowledge, and behaviors that constitute environmental consciousness [4].

Environmental education enables individuals to gain more knowledge about the environment, develop their attitudes towards it, and transform these into behavior [5, 6, 7, 8]. Environmental education includes teaching responsible behavior in all areas, including the use of resources, energy consumption, waste production and water consumption. Environmental education should be conducted in three fundamental settings: the home environment, the neighborhood, and the school [9]. Research carried on teachers in the school environment has shown that teacher candidates generally do not have sufficient levels of knowledge and attitudes towards the environment [10].

In a study conducted to determine the national status of the environmental education component of preservice teacher education programs, it was found that most schools have few requirements related to environmental education and that environmental education is not institutionalized in the majority of schools [11]. Çakır (2023) [12] determined that teachers' perceptions of environmental consciousness differ based on their subject and environmental education received. Uzun & İris (2023) [13] revealed that teacher candidates' cognitive perceptions of the concept of environment are inadequate and their consciousness levels regarding environmental issues are limited.

Contrary to these negative findings, [14] stated in their research that teachers generally exhibit a moderate level of commitment to nature and environmental sensitivity. Eyiol et al. (2024) [15] reported that teachers generally possess a high level of environmental sensitivity. Şaşkın & İzgi-Onbaşılı (2023) [16] found that teachers' relationship with nature and their level of environmental consciousness are above average and there is a moderate positive relationship among them. Sakçı & Uyanık (2023) [17] demonstrated that teachers generally exhibit a positive attitude towards environmental issues. Karacaoğlu & Karacaoğlu (2023) [18] reported that physics teachers generally possess environmental sensitivity, particularly regarding air, water, soil pollution, and ecological balance. Fidan-Yazgan (2023) [19] stated that science and elective environmental education programs implemented in primary and secondary schools in Türkiye generally focus on the knowledge component, but there are significant deficiencies in the skills, consciousness, attitude, and especially behavior components. Demir & Ulukaya-Öteleş (2023) [20] emphasized the importance of increasing environmental consciousness and global cooperation, suggesting that environmental education should be strengthened in this regard. In conclusion, various studies have highlighted that education provided by

environmentally conscious teachers can positively change children's attitudes towards the environment [6, 7, 8, 21, 22, 23, 24, 25].

In the province of Bitlis (Türkiye), where this research was studied, it has been observed that natural resources are being polluted (for example, the Bitlis River), there is litter and debris in the surroundings, and the air quality is severely compromised, especially during winter [26]. Observations indicate that the public is indifferent to these issues. A generation that is sensitive to the environment can only be nurtured through families, surroundings, and conscious teachers and administrators. It is believed that students raised by teachers and administrators with environmental awareness in schools will contribute to a cleaner Bitlis through this research. As seen in the studies mentioned above, environmental education given in schools is of vital importance in raising environmental consciousness students. A qualified environmental education is possible with environmental consciousness administrators and teachers in schools. In line with this purpose, first of all, the environmental consciousness levels of teachers and administrators working in schools in Bitlis Province should be determined.

The aim of this research is to determine the level of environmental consciousness of teachers and administrators working in schools (pre-school, primary, secondary and high school) affiliated to the Bitlis Provincial Directorate of National Education (Türkiye), as well as the relationships between these levels of consciousness and certain variables (age, gender, education level, professional experience, etc.).

2. Materials and methods

The universe of this research consists of teachers and administrators working at different official education levels (preschool, primary school, secondary school, and high school) in Bitlis province center. In the year the research was studied, it was determined that there were 142 schools and 1,287 teachers and administrators. It was observed that 19 of these schools did not have teachers or administrators. Due to time constraints and economic resources, it was preferred to take samples from the universe instead of reaching the entire universe. The random sampling method was used because of the high power of representing the universe and the equal or independent probability of sampling units being selected as a sample [27]. This research was studied in the spring semester of the 2021-2022 academic year.

2.1. Participants

The participants of the study consisted of 783 volunteers (87.87% (n=688) teachers and 12.13% (n=95) administrators) working in schools (Table 1) affiliated with the Bitlis Provincial Directorate of National Education.

Table 1. Distribution of participants according to school type

School Type	Number of Participating Schools	Number of Participating Volunteers
Preschool	4	17
Primary school	20	225
Secondary school	23	342
High school	18	199
Total	65	783

2.2. Data collection tools

The data collection tools used in the study included the "Environmental Consciousness Scale" (ECS) adapted by Prof. Dr. Sinan ERTEN[4], and the "Demographic Knowledge" (Table 2) section consisting of various open-ended questions about the environment. The ECS was developed by [28] and adapted to Turkish by [4]. Permission has been obtained for the use of the scale. This scale consists of 60 questions across three dimensions: 20 items related to environmental knowledge, 20 items related to attitudes towards the environment, and 20 items related to behaviors aimed at protecting the environment. The scale has previously undergone factor analysis and has been used in many studies in Türkiye. The statements in the scale are rated on a 5-point Likert scale ranging from strongly agree to strongly disagree, with options including: strongly agree, agree, somewhat agree, disagree, and strongly disagree, as well as frequency options: very often, often, sometimes, rarely, and never [29]. The findings obtained from the research were analyzed at a 95% confidence level. To examine the distribution of teachers' demographic characteristics, frequency and percentage values were provided, while mean and standard deviation values were used to reveal the levels of environmental consciousness.

Table 2. Demographic knowledge form

Questions	**Options**
Gender:	Female ( ) Male ( )
Your age:	20-25 ( ) 26-30 ( ) 31-35 ( ) 36-40 ( ) 41 and Above ( )
Department you graduated from:	…….
Your Education Status:	Associate Degree ( ) Bachelor's Degree ( ) Master's Degree ( ) Doctorate ( )
Your Role at School:	Administrator ( ) Teacher ( )
Length of Service in the Profession:	0-5 Yıl ( ) 6-10 Yıl ( ) 11-15 Yıl ( ) 16-20 Yıl ( ) 21 Years and Above ( )
Have you received any training regarding the environment?	Yes ( ) No ( )
If you received environmental education, at what level of education did you receive it?	Primary Education ( ) High School ( ) Associate Degree ( ) Bachelor's Degree ( ) Other ( )
Are you a member of any non-governmental organizations that work to protect the environment?	Yes ( ) No ( )
Do environmental issues concern you?	Yes ( ) No ( )
Do you have any organisms (plants or animals) that you care for at home?	Yes ( ) No ( )
What kind of place did you live in when you were a child?	Village ( ) Town ( ) District ( ) Small Town ( ) Big City ( )
What type of settlement do you currently live in?	Village ( ) Town ( ) District ( ) Small Town ( ) Big City ( )
How often did you go to natural environments (forest, lake, etc.) when you were a child?	Once a week ( ) Once every two weeks ( ) Once a month ( ) Whenever possible ( ) Other than these ( )
How often do you go to natural environments (forest, lake, etc.)?	Once a week ( ) Once every two weeks ( ) Once a month ( ) Whenever possible ( ) Other than these ( )
Where did you prefer to spend time outside when you were a child?	Park ( ) Garden of the House ( ) Natural area (forest etc.) ( ) Vacant land in the neighborhood ( ) Apart from these ( )
Where do you prefer to spend time outside?	Park( ) House Garden( ) Natural Area (forest etc.)( ) Shopping Mall( ) Other than these( )

2.3. Data analysis

In testing the sub-problems established in accordance with the purpose of the research, due to the normal distribution of the data, parametric techniques were used: Pearson Correlation Analysis for examining the relationship between variables; independent samples *t*-test for determining the difference between scale scores based on demographic characteristics; and One-Way Analysis of Variance (ANOVA) for more than two groups.

The choice of technique is determined by examining the distribution of the data. If the data shows a normal distribution, a *t*-test is used for binary groups, and ANOVA is used for more than two groups to examine the differences among the groups. If significant differences are detected through ANOVA, the Scheffé test is employed as a post hoc analysis to determine which specific groups differ from each other. If the data does not show a normal distribution (left-skewed or right-skewed), the Mann-Whitney U Test is applied for binary groups, and the Kruskal-Wallis H Test is used for three or more groups [30].

The research problem is as follows: "What is the role of attitudes towards the environment, environmentally friendly behaviors, and knowledge about the environment and environmental issues in determining the environmental consciousness levels of teachers and administrators?"

3. Results

3.1. Demographic characteristics of the participants

Of the 783 individuals participating in this research, 53.26% are female and 46.74% are male. It was determined that the majority of participants are in the age range of 26-30 years (44.57%); 89.02% are bachelor's degree holders and 10.98% are master's degree holders; the majority have 0-5 years of professional experience (55.48%); 87.87% are teachers, and 12.13% are administrators.

3.2. Results on participants' opinions related to the environment (yes and no options)

Participants were asked four questions related to the environment, with "Yes" and "No" options. The responses marked with high values (%) from the given options are indicated (Table 3).

Table 3. Participants' opinions on the environment: yes and no questions

Questions Regarding Participants' Opinions About the Environment	Yes (%)	No (%)
Have you received any education related to the environment?	40.36	**59.64**
Are you a member of any non-governmental organization focused on environmental protection?	8.05	**91.95**
Do environmental issues concern you?	**97.83**	2.17
Do you have any living beings (plants or animals) that you take care of at home?	**62.07**	37.93

When Table 3 is examined, questions were posed to assess the participants' views on environmental issues. In the first question, they were asked whether they had received education related to the environment; 40.36% of the participants responded affirmatively, while 59.64% answered negatively. When asked whether they were members of any non-governmental organization, 91.95% of the participants answered 'no' Regarding the question, 'Do environmental issues concern you?', a significant majority of the participants (97.83%) responded positively. In response to the question, 'Do you have any living beings (plants or animals) that you care for at home?', 62.07% of the participants answered 'yes,' while 37.93% answered 'no.

3.3. Findings related to participants' views on the places where they spent their childhood

Participants were asked six questions regarding the places where they spent their childhood. The responses to these questions are presented in ascending order based on percentage (%).

To the question, “What type of settlement did you live in during your childhood?” the answers were as follows: Town (3.83%), District (20.18%), Village (21.20%), Big city (22.61%), and Small city (32.18%).

To the question, “What type of settlement do you currently live in?” the answers were: Village (3.32%), Big city (6.51%), District (11.88%), and Small city (78.29%).

To the question, “How often did you go to natural environments (forest, lake, etc.) during your childhood?” the responses were: Every two weeks (6.26%), Other than these (9.32%), Once a month (15.96%), Once a week (24.78%), and As often as possible (43.68%).

To the question, “How often do you go to natural environments (forest, lake, etc.) now?” the responses were: Other than these (5.36%), Every two weeks (7.66%), Once a month (19.16%), Once a week (20.56%), and As often as possible (47.25%).

To the question, “Where did you prefer to spend time outdoors as a child?” the responses were: Other than these (4.98%), Park (13.67%), Vacant land in the neighborhood (25.54%), Natural area (forest, etc.) (26.05%), and The garden of the house (29.76%).

To the question, “Where do you prefer to spend time outdoors now?” the responses were: Shopping center (4.73%), Park (11.37%), Other than these (11.62%), The garden of the house (14.56%), and Natural area (forest, etc.) (57.73%).

The responses of the participants to the 5-point Likert-type questions are presented in Table 4-5. The most preferred option is marked among the relevant choices.

Table 4. 5-point Likert-type questions asked to participants about environmental attitudes

Questions	Strongly Disagree (%)	Disagree (%)	Slightly Agree (%)	Agree (%)	Strongly Agree (%)
I would like to learn about how to keep seas, lakes, and rivers clean.	0.60	2.60	6.50	36.30	**54.00**
I have no intention of doing anything to keep the seas, lakes, and rivers clean.	2.60	3.80	3.60	20.30	**69.70**
I can also do something to prevent further degradation of nature.	1.80	2.00	3.80	30.70	**61.70**
Even an individual can do something to keep the air clean.	0.80	1.40	4.60	23.90	**69.30**
I would like to volunteer and contribute to the cleaning of a polluted area (lake, river, forest and sea).	1.10	4.70	14.40	**42.10**	37.50

When Table 4 is examined, 54% of the participants responded 'strongly agree' to the question, 'I would like to learn how to keep seas, lakes, and rivers clean.' Similarly, 69.70% of the participants answered 'strongly agree' to the question, 'I have no intention of doing anything to keep the seas, lakes, and rivers clean.' Regarding the question, 'I can do something to prevent further degradation of nature,' a significant majority of the participants (61.70%) responded 'strongly agree.' It was determined that a large majority of the participants (69.30%) answered 'strongly agree' to the question, 'One individual can do something to keep the air clean.' Lastly, in response to the question, 'I would like to work voluntarily and contribute to the cleaning of a polluted area,' a significant majority of the participants (42.10%) answered 'agree.

When Table 5 is examined, it was found that a significant majority of the participants (34.40%) responded "never" to the question, "I throw used batteries in the regular trash bin." Regarding the question, "I throw used bottles in the bottle bank," the highest percentage of participants (30.90%) answered "occasionally." For the question, "I prefer to buy plastic files for school," the largest group of participants (34.20%) also responded "occasionally." In response to the question, "We are very diligent about saving energy at home or in my workplace," the majority of participants (53.80%) answered "very often." When asked, "Do you have conversations with friends about environmental pollution?", the highest percentage of participants (30.40%) indicated "occasionally." To the question, "How often do you attend a conference or meeting focused on environmental protection?", the most common response among participants (32.40%) was "quite a few." When asked, "Have you ever written a letter to a newspaper, journalist, or an authority regarding the prevention of environmental pollution?", a significant majority of participants (68.70%) responded "never." Regarding the statement, "Recycling refers to the recovery of certain wastes," the largest percentage of participants (33.30%) answered "very often." In response to the question, "It is very important for environmental protection to purchase recyclable paper," 61.90% of participants indicated "very often." Finally, for the question, "Waste should be collected separately as glass, plastic, paper, special waste, and other waste," a significant portion of participants (66.40%) responded "very often.

Table 5. 5-point Likert-type questions asked to participants about environmental behavior

Questions	Never (%)	Quite Few (%)	Occasionally (%)	Frequently (%)	Very Often (%)
I throw used batteries in normal trash bins.	**34.40**	21.70	17.80	14.00	12.10
I throw used bottles into bottle bins.	7.20	16.90	**30.90**	27.10	18.00
When purchasing files that I will use at school, I prefer plastic ones.	6.30	15.10	**34.20**	27.70	16.70
We are very meticulous about saving energy at home or in the institution where we work.	1.70	2.90	13.90	27.70	**53.80**
We chat with friends about environmental pollution.	3.70	12.80	**30.40**	25.40	27.70
How often have you attended conferences or any meetings on environmental protection?	18.80	**32.40**	31.80	10.70	6.30
Have you ever written a letter to a newspaper or journalist, politician or anyone in authority to prevent environmental pollution?	**68.70**	9.80	7.30	7.20	7.00
Recycling means recycling of some wastes.	3.40	7.00	29.60	26.60	**33.30**
When buying paper, it is very important for the environment to buy recyclable ones.	0.90	3.60	6.50	27.10	**61.90**
Garbage should be collected separately as glass, plastic, paper and special garbage.	0.60	3.20	9.20	20.60	**66.40**

3.4. Distribution of data and descriptive results

In this section of the research, the findings related to the descriptive results of the research and the distribution of the data obtained from the research are presented (Tables 6-7, Figure 1).

Table 6. Distribution of the data

	Central Tendency Measures		Kurtosis–Skewness	
Variables	$\bar{x}$	**Median**	**Kurtosis**	**Skewness**
Attitude	4.10	4.15	-0.737	0.701
Behavior	3.39	3.35	0.403	0.736
Knowledge	3.93	4.00	-0.503	-0.283
Environmental Consciousness	3.81	3.83	-0.384	0.137

The normal distribution test results for the environmental consciousness scale are as follows: The Kolmogorov-Smirnov test show $p<0.001$, and the Shapiro-Wilk test also had a $p<0.001$, indicating that the data do not follow a normal distribution. The skewness value was -0.384, and the kurtosis value was 0.137, suggesting a slight negative skewness and a near-normal peak distribution.

When the data were examined, it was found that the Kolmogorov-Smirnov *p*-value and Shapiro-Wilk *p*-value were both less than 0.05 ($p<0.001$), indicating that the data did not follow a normal distribution. However, as a result of the normality analysis, it was determined that the obtained data came from a normal distribution due to the closeness of the mean and median of the central tendency measures examined, as well as the kurtosis and skewness being within ±2 [31]. Additionally, when the histogram was examined, it was observed to show a normal distribution (Figure 2).

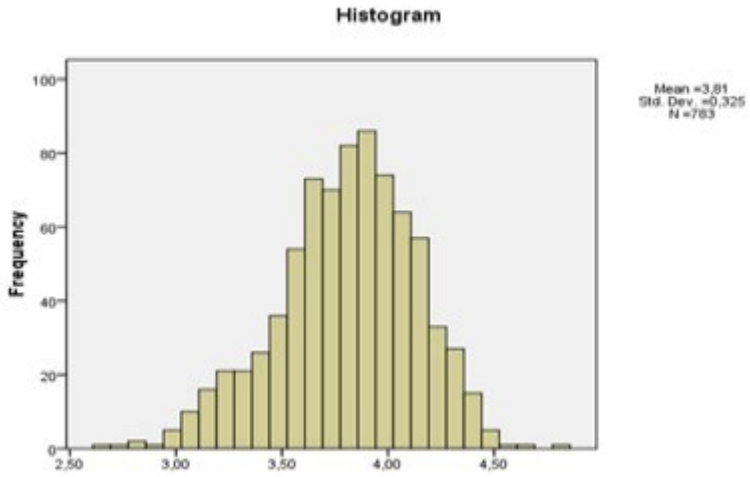

Figure 2. Histogram of the total score for environmental consciousness

It was determined that the participants' level of environmental consciousness was high, with a score of 3.81±0.33. When examining the sub-dimensions of environmental consciousness, it was found that the level of environmental consciousness attitude was high at 4.10±0.42, the level of behavioral consciousness was at a medium level of 3.39±0.46, and the level of knowledge was high at 3.93±0.49 (Table 7). In the calculation of the participants' response levels based on the obtained scores in Likert-format scales, a 0.8 point range (4/5=0.80) was used. In this case, the range corresponding to each measurement level is calculated by adding a 0.8 point range to the initial score of 1. Therefore, the ranges are as follows: 1-1.80 represents 'very low,' 1.81-2.60 represents 'low,' 2.61-3.40 represents 'medium,' 3.41-4.20 represents 'high,' and 4.21-5.0 represents 'very high' levels. If the total score of the scale is calculated, these ranges should be multiplied by the number of items [32].

Table 7. Descriptive findings related to the level of environmental consciousness

Variables	**Average**	**S.D.**
Attitude	4.10	0.42
Behavior	3.39	0.46
Knowledge	3.93	0.49
Environmental Consciousness	3.81	0.33

3.5. Results related to sub-problems

In this section of the research, analysis results related to the sub-problems established in accordance with the purpose of the study are presented. In the study, significant results

(p<0.05) were identified for five out of the sixteen sub-problems used, which are presented below.

The findings related to the question, "Is there a significant relationship between participants' knowledge, attitudes, and behaviors towards the environment?" regarding the relationship between attitude, behavior, and knowledge are provided in Table 8.

Table 8. Pearson correlation results between attitude, behavior, and knowledge

Variables		Attitude	Behavior	Knowledge
Attitude	*r*	1	0.268	0.430
	p		0.001**	0.001**
Behavior	*r*		1	0.108
	p			0.002**
Knowledge	*r*			1
	p			

**p<0.01; Pearson Correlation

According to [33], Pearson correlation coefficients between 0.1 and 0.3 are considered low, between 0.3 and 0.5 are moderate, and above 0.5 are considered high-level correlations. In line with this, when the results of the correlation analysis in Table 8 are examined, it was found that there is a positive low-level significant relationship between participants' attitude levels and behavior levels (r=0.268; p<0.01). This result indicates that when the participants' attitude levels are improved, there will be a low-level increase in their behavior levels. It was also determined that there is a positively moderate-level significant relationship between the participants' attitude levels and knowledge levels (r=0.430; p<0.01), suggesting that when the participants' attitude levels are improved, there will be a moderate-level increase in their knowledge levels. Furthermore, a positively low-level significant relationship was found between the participants' behavior levels and knowledge levels (r=0.108; p<0.01), indicating that when the participants' behavior levels are improved, there will be a low-level increase in their knowledge levels.

The findings related to the question, "Does the participants' status of receiving any environmental education lead to differences in their knowledge, attitudes, behaviors, and consciousness towards the environment?" are presented in Table 9.

Table 9. Comparison of their status of receiving education related to the environment with environmental consciousness and its sub-dimensions

Environmental Consciousness	Receiving Education Related to the Environment	n	Average	S.D.	*t*	*p*
Attitude	Yes	316	4.13	0.42	1.445	0.149
	No	467	4.09	0.41		
Behavior	Yes	316	3.46	0.44	3.580	0.001**
	No	467	3.34	0.47		
Knowledge	Yes	316	3.95	0.51	0.809	0.419
	No	467	3.92	0.48		
Environmental Consciousness	Yes	316	3.85	0.34	2.712	0.007**
	No	467	3.78	0.32		

**p<0.01; t: Independent Samples t-Test

To determine whether there is a significant difference between the environmental consciousness levels of individuals participating in the study and their status of receiving environmental education, an independent samples *t*-test analysis was studied. As a result of this analysis, a significant differentiation was found between the status of receiving environmental education and environmental consciousness (*t*:2.712; $p<0.001$) as well as the behavioral dimension of environmental consciousness (*t*:3.580; $p<0.001$). When examining the means, it was determined that individuals who received any environmental education had higher levels of environmental consciousness and behavior compared to those who did not receive such education. On the other hand, there was no differentiation in attitude and knowledge levels based on the status of receiving environmental education ($p>0.05$).

The findings related to the question, "Does the participants' perception that environmental issues concern them lead to differences in their knowledge, attitudes, behaviors, and consciousness towards the environment?" are presented in Table 10.

Table 10. Comparison of their concern about environmental issues with environmental consciousness and its sub-dimensions

Environmental Consciousness	Do Environmental Issues Concern You?	n	Average	S.D.	*t*	*p*
Attitude	Yes	766	4.11	0.41	3.014	0.003**
	No	17	3.67	0.65		
Behavior	Yes	766	3.39	0.46	1.894	0.059
	No	17	3.31	0.57		
Knowledge	Yes	766	3.93	0.49	2.582	0.011*
	No	17	3.64	0.51		
Environmental Consciousness	Yes	766	3.81	0.32	3.514	0.001**
	No	17	3.54	0.40		

**$p<0.01$; *$p<0.05$; *t*: Independent Samples *t*-Test

To determine whether there is a significant difference between the environmental consciousness levels of individuals participating in the study and their interest in environmental issues, an independent samples *t*-test analysis was studied. As a result of this analysis, a significant differentiation was found between the interest in environmental issues and environmental consciousness (*t*:3.514; $p<0.001$), the attitude dimension of environmental consciousness (*t*:3.014; $p<0.001$), and the knowledge dimension of environmental consciousness (*t*:2.582; $p<0.001$). When examining the means, it was determined that individuals interested in environmental issues had higher levels of environmental consciousness, attitude, and behavior compared to those who were not interested in such issues. On the other hand, there was no differentiation in behavior levels based on interest in environmental issues ($p>0.05$).

The findings related to the question, "Does the place where participants spent their childhood lead to differences in their knowledge, attitudes, behaviors, and consciousness towards the environment?" are presented in Table 11.

Table 11. Comparison of the places where they spent their childhood with environmental consciousness and its sub-dimensions

Environmental Consciousness	Place Where They Spent Their Childhood	n	Average	S.D.	*F*	*p*	Scheffe
Attitude	Village (a)	166	4.18	0.39	5.508	0.001**	**a>b,d**
	Town (b)	30	3.88	0.57			
	District (c)	158	4.10	0.43			
	Small city (d)	252	4.05	0.41			
	Big city (e)	177	4.15	0.40			
Behavior	Village	166	3.39	0.49	1.185	0.316	
	Town	30	3.39	0.45			
	District	158	3.45	0.46			
	Small city	252	3.35	0.46			
	Big city	177	3.40	0.43			
Knowledge	Village (a)	166	3.98	0.51	3.911	0.004**	**a>b**
	Town (b)	30	3.61	0.52			
	District (c)	158	3.92	0.51			
	Small city (d)	252	3.91	0.47			
	Big city (e)	177	3.96	0.45			
Environmental Consciousness	Village (a)	166	3.85	0.33	4.491	0.001**	**a>b**
	Town (b)	30	3.63	0.38			
	District (c)	158	3.82	0.32			
	Small city (d)	252	3.77	0.33			
	Big city (e)	177	3.84	0.29			

**$p<0.01$; *F*: One-Way ANOVA Analysis

To determine whether there is a significant difference between the environmental consciousness levels of individuals participating in the study and the places where they spent their childhood, a one-way ANOVA analysis was studied. As a result of this analysis, a significant differentiation was found between the places where participants spent their childhood and their environmental consciousness (F:4.491; $p<0.001$), attitude (F:5.508; $p<0.001$), and Knowledge (F:3.911; $p<0.001$) levels. To examine which groups contributed to the differentiation, the Scheffé test was studied. The results showed that the differences were between those who spent their childhood in villages and those in towns, as well as for the attitude dimension between those who spent their childhood in villages and those in towns and small cities. It was determined that individuals who spent their childhood in villages had higher levels of environmental consciousness and knowledge compared to those who spent it in towns, and those who spent their childhood in villages also had higher attitude levels than those in towns and small cities.

The findings related to the question, "Does the place where participants prefer to spend time outdoors lead to differences in their knowledge, attitudes, behaviors, and consciousness towards the environment?" are presented in Table 12.

Table 12. Comparison of the places they prefer to spend time outdoors with environmental consciousness and its sub-dimensions

Environmental Consciousness	Preferred Place to Spend Time Outdoors	n	Average	S.D.	*F*	*p*	Scheffe
Attitude	Park (a)	89	4.06	0.38	4.267	0.002**	**c>d**
	Garden of the house (b)	114	4.06	0.43			
	Natural area (c)	452	4.15	0.39			
	Shopping center (d)	37	3.94	0.45			
	Apart from these (e)	91	4.03	0.50			
Behavior	Park	89	3.37	0.45	2.514	0.040*	**b,c>d**
	Garden of the house	114	3.42	0.49			
	Natural area	452	3.42	0.46			
	Shopping center	37	3.24	0.43			
	Apart from these	91	3.30	0.39			
Knowledge	Park	89	3.90	0.50	0.704	0.590	
	Garden of the house	114	3.88	0.47			
	Natural area	452	3.95	0.50			
	Shopping center	37	3.91	0.46			
	Apart from these	91	3.90	0.45			
Environmental Consciousness	Park	89	3.78	0.32	3.537	0.007**	**c>d**
	Garden of the house	114	3.79	0.31			
	Natural area	452	3.84	0.32			
	Shopping center	37	3.70	0.33			
	Apart from these	91	3.74	0.35			

***p*<0.01; **p*<0.05; *F*: One-Way ANOVA Analysis

To determine whether there is a significant difference between the environmental consciousness levels of individuals participating in the study and the places they prefer to spend time outdoors, a one-way ANOVA analysis was studied. As a result of this analysis, a significant differentiation was found between the preferred outdoor places and environmental consciousness (*F*:3.537; *p*<0.001), attitude (*F*:4.267; *p*<0.001), and behavior (*F*:2.514; *p*<0.001) levels. To examine which groups contributed to the differentiation, the Scheffé test was studied. The results showed that the differences were between those who preferred to spend time in shopping centers and those who preferred natural areas, as well as for the behavior dimension between those preferring shopping centers and those spending time in their gardens and natural areas. It was determined that individuals spending time in natural areas had higher levels of environmental consciousness and attitude compared to those in shopping centers, and those spending time in their gardens and natural areas had higher behavior levels than those spending time in shopping centers.

When examining the correlations between knowledge, behavior, and attitude, it was observed that the relationship between knowledge and behavior, as well as between behavior and attitude, was low, while the relationship between knowledge and attitude was moderate. The Pearson correlation values were found to be: 0.108 between knowledge and behavior, 0.268 between behavior and attitude, and 0.430 between knowledge and attitude.

Table 13. The explanatory effect of teachers' and administrators' attitudes and knowledge on environmentally friendly behaviors

	r	R^2	*p*
Knowledge > Behavior	.108 (.001)	.012	.002
Attitude > Behavior	.268 (.000)	.072	.002
Knowledge+Attitude > Behavior		.072	.002

When examining the factors that constitute the environmental consciousness of teachers and administrators in Bitlis province, it is observed that their attitudes towards the environment and environmental knowledge do not sufficiently explain environmentally friendly behaviors (R^2=7%). This indicates that attitudes towards the environment and environmental knowledge are not very effective in the emergence of behaviors (Table 13).

4. Discussion

In this study, when examining the factors that constitute the environmental consciousness of teachers and administrators, it is observed that their attitudes towards the environment and environmental knowledge do not sufficiently explain environmentally friendly behaviors (R^2=7%). This indicates that attitudes towards the environment and environmental knowledge are not very effective in the emergence of behaviors.

In this study, the Cronbach α reliability value of the scale used was determined as α=.82. This value was found as α=.97 for the part applied in Turkey and α=.84 for the part applied in Azerbaijan in the study studied by [29]. In the study studied by [34], α=.81 was found; in the study titled Relationship between reflective thinking tendencies and environmental awareness of classroom teachers by [35], α=.73 was found at the knowledge level and α=.80 at the behavior level.

The correlation results show that there is a low positive significant relationship between the participants' attitude levels and behavior levels; there is a moderate positive significant relationship between the participants' attitude levels and knowledge levels; and a low positive significant relationship between the participants' behavior levels and knowledge levels. In a study studied by [29], it was found that there is a moderate correlation between the attitudes, knowledge, and behaviors of Turkish and Azerbaijani students.

Numerous studies have been studied on the impact of general attitudes on environmentally beneficial behaviors. However, many empirical studies have shown that the statistical relationship between general attitudes and behaviors is very low [35]. The study also found that there was no significant difference between the participants' environmental consciousness levels and their gender, age, education levels, professional experiences, roles at school, membership status in NGOs, levels of environmental education received, current places of residence, frequency of visiting natural areas during childhood, and places they spent time outdoors as children (p>0.05). Similar findings were observed in a study studied by [36]. In another study by [37], it was found that the average scores of reflective thinking scale significantly varied based on membership in environmental organizations.

In a study [38], a significant difference was found in psychomotor and overall scores while no significant difference was found in cognitive and affective levels. It was expressed that graduate degree holders tend to perform better than undergraduate degree holders. This situation was similarly observed by [12]. It was determined that participants' perceptions of environmental consciousness did not show differences in social activity and collaboration, application and modeling, association with daily life, attitudes and consciousness, and overall environmental consciousness according to their educational status. According to the findings, it can be said that participants' perceptions of

environmental consciousness did not differ in all dimensions and, on the contrary, showed similarities.

In [38] study, it was reported that those who worked for 11 years or more had a higher level of environmental consciousness compared to those who worked for 6-10 years. The findings related to environmental education were found to parallel those of [39] and [40]. In this study, it was determined that there is no significant relationship between the ages of the participants and their levels of environmental consciousness (p>0.05). A similar situation was observed in the research results studied by [39] and [41]. However, in [39] findings, it was stated that age differences were statistically significant in their views on the environment.

In response to the question "I would like to see the knowledge on how to keep seas, lakes, and rivers clean," the majority of participants responded positively (strongly agree, 54.00%). A similar result was also found in [42] study. Additionally, regarding the question "I have no intention of doing anything to keep seas, lakes, and rivers clean," a response of strongly agree (69.70%) was noted. This question was answered in parallel with 72.1% in [42] study. In response to the question "I can do something to prevent further degradation of nature," 61.70% of participants responded with strongly agree, which similarly aligned with 50.7% in [42] study.

Based on these findings, a contradiction has emerged in the responses of teachers and administrators. This situation indicates that while teachers and administrators possess knowledge and attitudes regarding the environment, they seem to face challenges in translating these into behavior.

In this study, a significant difference was found between the participants' levels of environmental consciousness and the places they spent their childhood (p>0.05). The Scheffé Test revealed that the differences originated between those who spent their childhood in villages and those in towns, and for the attitude dimension between those in villages and those in towns and small cities. It was determined that individuals who spent their childhood in villages had higher levels of environmental consciousness and knowledge compared to those in towns. Furthermore, those who grew up in villages also had higher attitude levels than those in towns and small cities. Similarly, in a study studied by [43] on the environmental friendly behaviors of preschool teachers, it was found that teachers who grew up in small cities had higher attitudes towards the environment compared to those from large cities.

In this study, individuals who received any environmental education had higher levels of environmental consciousness and behavior compared to those who did not receive environmental education. However, there was no significant difference in attitude and knowledge levels based on the status of receiving environmental education. In another study [44], it was found that the scores from the environmental consciousness sub-dimension significantly differed based on whether they took an environmental course, with the difference being in favor of those who took the course. Other studies evaluating the environmental consciousness levels of physics, chemistry, and biology teacher candidates highlight that environmental education is not sufficiently emphasized in educational institutions in our country. Considering all items in the survey, it was concluded that knowledge and attitudes towards the environment did not differ based on

gender and branch. Another finding was that teacher candidates' knowledge and behaviors towards the environment were not at a sufficient level [10].

In this research, regarding the question "Does the current place of residence of participants cause differences in their knowledge, attitudes, behaviors, and consciousness towards the environment?" no significant difference was found between the current place of residence and the participants' environmental consciousness and its sub-factors. In the study by [44] it was also found that the scores from the environmental sensitivity and environmental consciousness sub-dimensions did not show significant differences based on the place of residence.

In this study, it was observed that the majority of participants (69.30%) responded with strongly agree to the question "Can an individual do something to keep the air clean?" Similarly, in a study studied by [42], the majority (67.9%) also responded with strongly agree. The data indicate that participants have a positive attitude and consciousness regarding air pollution and its solutions. Regarding the question "I would like to volunteer and contribute to the cleaning of a polluted area," 42.10% responded with agree, which parallels [42] study where 49.6% agreed. Based on these results, it can be inferred that participants are willing to contribute to cleaning efforts for polluted areas, indicating their sensitivity to pollution in their environment.

In this study, a portion of the participants responded that they sometimes discuss environmental pollution with friends (30.40%), indicating their consciousness of the pollution issue. When asked how often they attend conferences or meetings related to environmental protection, 32.40% responded very rarely. Furthermore, 33.30% stated that they completely agree with the statement "Recycling means reusing certain wastes," showing their consciousness of recycling. Additionally, 61.90% completely agreed that "It is very important to buy recyclable paper for environmental protection," and 66.40% completely agreed that "Waste should be collected separately as glass, plastic, paper, special waste, and other waste." This indicates that teachers and administrators in this study are aware of the need for separate waste collection and the importance of recycling.

Moreover, when asked if they throw used bottles into bottle banks, 30.90% said sometimes, and when asked if they prefer plastic files for school, 34.20% responded sometimes. Regarding the question of whether they throw used batteries into regular trash bins, 34.40% said never, suggesting that participants likely dispose of old batteries in battery collection boxes. Additionally, 53.80% frequently stated that they are very careful about energy conservation at home or in their workplace. It appears that teachers in Bitlis province do not have low attitudes towards environmental consciousness, environmental knowledge, and solutions to environmental problems. They express concern about environmental issues and are dissatisfied with the current situation. It has been identified that although teachers and administrators have knowledge and attitudes regarding the environment, there are deficiencies in translating this Knowledge and attitude into behavior.

Finally, the study found that the environmental attitudes and knowledge of teachers and administrators do not sufficiently explain environmentally friendly behaviors (R^2=7%). This suggests that attitudes towards the environment and environmental Knowledge are not very effective in the emergence of behaviors. The correlation analysis results indicate that there is a low positive significant relationship between attitude levels and behavior

levels, a moderate positive significant relationship between attitude levels and knowledge levels, and a low positive significant relationship between behavior levels and knowledge levels. In a study studied by [29], it was found that Turkish students exhibited a moderate correlation between their attitudes, knowledge, and behaviors.

Implications

In this study, the larger number of participants compared to similar studies makes the research significant. As is well known, acquiring knowledge about the environment is a lifelong endeavor. This research indicates that teachers and administrators in the province of Bitlis are sensitive to environmental issues, but they do not actively reflect this awareness in their efforts to protect the environment. In the literature, it has been noted that a primary reason for the generally low level of environmental awareness is the lack of environmental education curricula in schools. Furthermore, fundamental environmental knowledge is not adequately addressed in various courses offered in the curriculum. In higher education, the universally accepted understanding of environmental education has remained weak across all universities [10, 19, 45, 46]. The ability of prospective teachers to serve as good role models for their students regarding environmental issues depends on the quality of the environmental education courses they receive during their pre-service training. Therefore, the inclusion of mandatory and elective courses related to the environment in every program will help prevent prospective teachers from constructing their environmental knowledge based on hearsay, fostering individuals with environmental knowledge and awareness [9]. If natural resources continue to be used carelessly, numerous environmental disasters will unfortunately occur, endangering human life [47]. It is recommended to conduct activities that will increase environmental awareness and attitudes; to carry out similar studies in regions with different socioeconomic conditions to enrich research findings; to conduct research with adults from various professions in institutions such as schools, universities, and hospitals; to educate the public through seminars and panels on environmental education at community education centers; to convey messages about what can be done for the environment through media; to encourage everyone to use environmentally friendly products; to have municipalities provide recycling bins in streets, neighborhoods, and communities; and to organize nature trips by various institutions to raise environmental awareness.

Limitations

This research was studied on a voluntary basis with teachers and administrators working in various official educational institutions (kindergarten, primary school, secondary school, and high school) located in the central district of Bitlis Provincial Directorate of National Education during the spring semester of the 2021-2022 academic year. The forms related to the research were implemented starting from June 6, 2022, with the approval of the provincial governor’s decree dated May 27, 2022, and the consent of the provincial directorate of national education. As of the year the research was studied, there are 142 schools and 1,287 teachers and administrators in the central district of Bitlis. In this context, the sample of the research consisted of 783 volunteer teachers and administrators.

References

[1] Erten, S., 5. sınıf öğrencilerinde" çöplerin azaltılması" bilincinin kazandırılmasına yönelik bir öğretim modeli, **Hacettepe Üniversitesi Eğitim Fakültesi Dergisi**, 25, 94-103, (2003).

[2] Çiftçi, S. ve Kayaer, M., Yükseköğretimde çevre eğitiminin çevre bilincine etkisi, **Yönetim ve Ekonomi Dergisi**, 29, 1, 93-106, (2022).

[3] Gürcüoğlu, S., Türkiye'de çevre eğitiminde kamu örgütleri, sivil toplum örgütleri ve medyanın rolü, **Gazi Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi**, 15, 3, 151-170, (2013).

[4] Erten, S., Okul öncesi öğretmen adaylarında çevre dostu davranışların araştırılması, **Hacettepe Üniversitesi Eğitim Fakültesi Dergisi**, 28, 28, 91-100, (2005).

[5] Erten, S., Enerji tasarrufu davranışında ortaya çıkabilecek psikolojik ve sosyolojik engeller, **25. Enerji Verimliliği Konferansı***,* 23-34, (2006).

[6] Zsóka, Á., Szerényi, Z. M., Széchy, A. ve Kocsis, T., Greening due to environmental education? Environmental knowledge, attitudes, consumer behavior and everyday pro-environmental activities of Hungarian high school and university students, **Journal of Cleaner Production**, 48, 126-138, (2013).

[7] Liefländer, A. K., Fröhlich, G., Bogner, F. X. ve Schultz, P. W., Promoting connectedness with nature through environmental education, **Environmental Education Research**, 19, 3, 370-384, (2013).

[8] Otto, S. ve Pensini, P., Nature-based environmental education of children: Environmental knowledge and connectedness to nature, together, are related to ecological behaviour, **Global Environmental Change**, 47, 88-94, (2017).

[9] Demirkaya, H., Çevre eğitiminin Türkiye'deki coğrafya programları içerisindeki yeri ve çevre eğitimine yönelik yeni yaklaşımlar, **Fırat Üniversitesi Sosyal Bilimler Dergisi**, 16, 1, 207-222, (2006).

[10] Demircioğlu, G., Demircioğlu, H. ve Yadigaroğlu, M., Fizik, kimya ve biyoloji öğretmen adaylarının çevre bilinç düzeylerinin değerlendirilmesi, **Adıyaman Üniversitesi Sosyal Bilimler Enstitüsü Dergisi**, 19, 167-193, (2015).

[11] McKeown-Ice, R., Environmental education in the United States: A survey of preservice teacher education programs, **The Journal of Environmental Education**, 32, 1, 4-11, (2000).

[12] Çakır, Ö., Fen bilimleri ve sosyal bilgiler öğretmenlerinin çevre bilinci algıları, Yüksek lisans tezi, Pamukkale Üniversitesi, Denizli (2023).

[13] Uzun, B. ve İris, H., Fen bilimleri öğretmen adaylarının çevre ve çevre sorunlarına yönelik algılarının kelime ilişkilendirme testi aracılığıyla belirlenmesi, **Social Science Development Journal**, 8, 40, 105-125, (2023).

[14] Gürer, B. ve Mermer, K. K., Çevre bilinci, çevresel duyarlılık ve doğaya bağlılık: öğretmenler üzerine bir inceleme, **Spor ve Performans Araştırmaları Dergisi**, 14, 3, 349-366, (2023).

[15] Eyiol, S., Çövüt, O., Mergensoy, D., Kırğıl, A., Bacak, E. ve Karadeniz, V., Öğretmenlerin Çevre Duyarlık Algıları, **Premium e-Journal of Social Science (PEJOSS)**, 8, 38, 209-225, (2024).

[16] Şaşkın, F. ve İzgı-onbasılı, U., Sınıf öğretmenlerinin doğayla ilişki ve çevre bilinç düzeyleri arasındaki ilişkinin incelenmesi, **Uluslararası Temel Eğitim Çalışmaları Dergisi**, 4, 3, 99-117, (2023).

[17] Sakçı, G. ve Uyanık, G., Sınıf öğretmenlerinin çevre sorunlarına ilişkin tutumlarının ve çevresel duyarlılıklarının incelenmesi, **International Journal of**

Eurasia Social Sciences/Uluslararasi Avrasya Sosyal Bilimler Dergisi, 14, 53, 1170-1193, (2023).

[18] Karacaoğlu, Ö. C. ve Karacaoğlu, D., Fizik öğretmenlerinin çevre duyarlılıkları, **Uluslararası Eğitimde Mükemmellik Arayışı Dergisi (UEMAD)**, 3, 2, 1-19, (2023).

[19] Fidan-Yazgan, P., Ulusal fen bilimleri öğretim programları ve seçmeli çevre eğitimi programlarındaki kazanımların çevre okuryazarlığı bağlamında karşılaştırılması, Yüksek lisans tezi, Marmara Üniversitesi, İstanbul, (2023).

[20] Demir, F. B. ve Ulukaya-Öteleş, Ü., Öğretmenlerin gözüyle çevre sorunları ve çevre sorunlarına ilişkin çözüm önerileri, **Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi**, 23, 1, 379-396, (2023).

[21] Boland, H. ve Heintzman, P., **The perceived impact of a university outdoor education program on students' environmental behaviors**. In In: Watts, Clifton E., Jr.; Fisher, Cherie LeBlanc, eds. Proceedings of the 2009 Northeastern Recreation Research Symposium. Gen. Tech. Rep. NRS-P-66. Newtown Square, PA: US Department of Agriculture, Forest Service, Northern Research Station: 31-35. (Vol. 66, pp. 31-35), (2010).

[22] McEwen, K. E., The primary school factors that shape the environmental knowledge, attitudes, and behaviours of children, Doctoral dissertation, University of Waikato, (2015).

[23] Hashemzadeh, F., Environmental awareness, attitudes, and behaviour of secondary school students and teachers in Tehran, Doctoral dissertation, University of Waikato, İran, (2016).

[24] Pan, S. L., Chou, J., Morrison, A. M., Huang, W. S. ve Lin, M. C., Will the future be greener? The environmental behavioral intentions of üniversity tourism students. **Sustainability**, 10, 3, 634, (2018).

[25] Al-Qadasi, E., Outdoor encounters in nature as a promoter for environmental consciousness of primary school students from their teachers' perspectives, Master Thesis, Linköping University, (2022).

[26] Alkan, A., Bitlis şehrinin çevre sorunlari ve alinmasi gereken önlemler, **Doğu Coğrafya Dergisi**, 20, 33, 11-36, (2015).

[27] Büyüköztürk, Ş., Çakmak-Kılıç, E., Akgün, Ö. E., Karadeniz, Ş. ve Demirel, F., **Bilimsel araştırma yöntemleri,** Pegem Yayıncılık (2014).

[28] Schrenk, M., **Umwelterziehung an der Förderschule.** Kiel. IPN. (1994).

[29] Erten, S., Türk ve Azeri öğretmen adaylarında çevre bilinci, **Eğitim ve Bilim**, 37, 166, 88-100, (2012).

[30] Kilmen, S., **Eğitim araştırmacıları için SPSS uygulamalı istatistik (4. Baskı)**, Anı Yayıncılık, (2022).

[31] George, D. ve Mallery, M., **SPSS for windows step by step: a simple guide and reference,** 17.0 update (10a ed.). Boston: Pearson.(2010).

[32] Göncü, F. M. (2023). Etkileşimli okuma faaliyetinin, dil ve konuşma bozukluğu olan veya olmayan okul öncesi çocuklarının iletişim becerilerine olan etkisinde ebeveyn uygulama ve görüşlerinin belirlenmesi [Yayınlanmamış yüksek lisans tezi]. Kapadokya Üniversitesi.

[33] Harris, P. T., & Brown, P. J. (2010). "Pearson's correlation coefficient and its interpretation in research." Journal of Research in Education 12(2), 34-46.

[34] Kahyaoğlu, M., & Özgen, N., Öğretmen adaylarının çevre sorunlarına yönelik tutumlarının çeşitli değişkenler açısından incelenmesi, **Journal of Theoretical Educational Science,** 173, (2012).

[35] Şener, A. ve Yoldaş, C., Sınıf öğretmenlerinin yansıtıcı düşünme eğilimleri ve çevre bilinci arasındaki ilişki, **Uluslararası Afro-Avrasya Araştırmaları Dergisi**, 5, 10, 125-139, (2020).

[36] Erten, S., Planlanmış davranış teorisi ile uygulamalı öğretim metodu, **Hacettepe Üniversitesi Edebiyat Fakültesi Dergisi**, 19, 2, 217-233, (2002).

[37] Karaismailoğlu, E. S., Öğretmenlerin çevre bilinci düzeyinin belirlenmesi-Ankara Etimesgut örneği, Yüksek lisans tezi, Hacettepe Üniversitesi, Ankara, (2018).

[38] Sümmen, A., Sınıf öğretmen adaylarının yansıtıcı düşünme eğilimleri ile tüketici çevre bilinci düzeyleri arasındaki ilişki, Yüksek lisans tezi, Necmettin Erbakan Üniversitesi, Konya, (2022).

[39] Baş, O., Ortaöğretim kurumlarında çevre bilincinin yöneticiler ve öğretmenler tarafında algılanma ve benimsenme düzeyi, Yüksek lisans tezi, Maltepe Üniversitesi, İstanbul, (2011).

[40] Erol, G. H., Sınıf öğretmenliği ikinci sınıf öğrencilerinin çevre ve çevre sorunlarına yönelik tutumları, Yüksek lisans tezi, Pamukkale Üniversitesi, Denizli, (2005).

[41] Karataş, A., Çevre bilincinin geliştirilmesinde çevre eğitiminin rolü ve Niğde Üniversitesi eğitim fakültesi örneği, Doktora tezi, Ankara Üniversitesi, Ankara, (2013).

[42] Kaya-Durna, D., İlköğretim okullarında görev yapan sınıf öğretmenlerinin çevre bilinci ve bu okullardaki çevre eğitimi, Yüksek lisans tezi, Amasya Üniversitesi, Amasya, (2016).

[43] Günindi, Y., Okul öncesi öğretmenlerinin çevre dostu davranışlarının araştırılması, **TÜBAV Bilim Dergisi**, 3, 3, (2010).

[44] Torun, B., Aydemir, K. ve Gül, A., Öğretmen adaylarının çevre bilinci ve çevresel duyarlılıklarının farklı değişkenlere göre incelenmesi, **Anadolu Öğretmen Dergisi**, 7, 1, 1-24, (2023).

[45] Özdemirkol, M., Çevre Bilinci Eğitiminde Muş Alparslan Üniversitesi'nin ders müfredatı üzerine bir inceleme. **Anemon Muş Alparslan Üniversitesi Sosyal Bilimler Dergisi***,* 8(UMS'20), 181-191, (2020).

[46] Alım, M., Avrupa Birliği üyelik sürecinde Türkiye'de çevre ve ilköğretimde çevre eğitimi. **Kastamonu Education Journal**, 14(2), 599-616, (2006).

[47] Buhan, B., Okul öncesinde görev yapan öğretmenlerin çevre bilinci ve bu okullardaki çevre eğitiminin araştırılması, Yüksek lisans tezi, Marmara Üniversitesi, İstanbul, (2006).