Comparison of Environmental Attitudes of University Students Determined Via the New Environmental Paradigm Scale According to the **Students' Personal Characteristics**

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Abstract

Problem Statement: It is a known fact that educational activities contribute in an important way to the approaches for creating lasting solutions for environmental problems. In relation to the environment, it is necessary to develop awareness and sensitivity in terms of the rights and responsibilities of all individuals, and thus environmental education should be managed and applied very seriously.

Purpose of Study: This study was designed and conducted to detect university students' attitudes about the environment.

Methods: The study sampling group was composed of 213 students at Gazi University. In this framework, the environmental attitudes of the students in the Business Administration Department, who had taken no courses relating to the environment, and of the students in the Department of Family and Consumer Sciences Education, who had taken an environment course, were detected via *new environmental paradigm scale A* 5-point Likert-type scale composed of 15 items and statements was used to this end. Cronbach's Alpha Coefficient of the scale was calculated to be .754.

Findings and Results: The attitudes of students about the environment were found to be generally slightly positive, with the most positive attitudes

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being "Animals and plants have at least as much right to live as do human beings" and "We will face important environmental problems in the future unless we give up today's consumption habits." On the other hand, the results of the *t*-test and variance analysis made to compare groups revealed that university students who have taken environment courses, female students, third- grade students, students with university graduate parents, and students with a monthly family income at or above 1500 TL have a more positive attitude toward the environment than do those who have not taken any environment courses, males, fourth- grade students, those with parents who did not have a university level education, and those with a monthly family income below 1500 TL.

Conclusion and Recommendations: The attitudes of students toward the environment were generally found to be positive above the medium level. It can be stated that socio-economic development has an important role in the formation and growth of environmental awareness. Furthermore, in order for students to gain more positive attitudes and behaviors toward the environment, beginning environmental education in primary school will increase students' sensitivity toward the environment and thus contribute toward to the creation of a habitable environment, which will increase the well-being of society.

Keywords: Environment, environmental attitude, environmental education, university students, environmental paradigm scale

Introduction

The environment is defined as the total of the biological, geographic, and social factors effecting people directly and indirectly in a certain time period, and which determines the materialistic, spiritual development and living conditions of people (Cansaran &Yıldırım, 2010). Since the life of living beings is a product of the environment in which they live, changes in the environment occurring from natural or various interventions equally affect all life that exists in that region (Şahin, Cerrah, Saka, & Şahin, 2004). These changes result from indifferent human behaviors that create environmental problems (Özmen, Çetinkaya, & Nehir, 2005).

Global environmental problems, in parallel with rapid population growth, have become an issue that is progressively gaining importance in every country, including Turkey. The main environmental problems can be identified as: water pollution, air pollution, soil pollution, food pollution, waste, noise pollution, radioactive contamination, climate change, depletion of the ozone layer, natural disasters, global warming, and so forth. The problems that will be created by environmental pollution are closely related to the future of every individual, and the participation of society as a whole in environmental health is important for the solution of problems (Beyhun et al., 2007).

Social scientists have long been studying the attitudes of people toward the natural world. One of the challenges of the research is to develop a measurement that is significant, correct, and close to reality in this impressive area of human experience. One of these measurements is the "New Environmental Paradigm" (NEP) developed by Dunlap and Liere (1978) in order to enlighten the world view directed toward environmental attitudes. This scale reveals the unavoidability of the limitations resulting from growth, the necessity of achieving an economy that offers sustainability, the importance of protecting the environment, and the attitudes related to the obligation for rejecting the human-centered opinion that considers the environment as being present only for human use (Günden & Miran, 2008).

The fact that environmental problems have become globalized and have reached a point that threatens life on the planet has encouraged people to review their relationships with the environment, their attitudes and behaviors toward the environment, and the tasks and responsibilities undertaken by individuals for the environment, and to redefine ecologic culture and environmental awareness. In recent years in particular, the relationship between educational training and environmental problems has begun to be re-examined; and whether teachers, schools, and the curricula are appropriate for raising individuals who have environmental sensitivity and ecological awareness has begun to be questioned again (Atasoy, 2005). It is a known fact that educational activities have an important contribution to the approaches of creating lasting solutions for environmental problems. In relation to the environment, it is necessary to develop in students an awareness and sensitivity of the rights and responsibilities of all individuals, and thus environmental education should be managed and applied very seriously (Şafak & Erkal, 1995).

Environmental education gained an international dimension at the United Nations Conference on the Human Environment held in Stockholm in 1972. Attention was drawn to the attitudes and behaviors of people toward their environment. At the conference held in Tbilisi in 1977, that environmental education took its place in human education was a turning point (Yaylı & Berk, 2009). In its declaration the qualifications, importance, objectives, and pedagogical principles of environmental education, with its wide framework at the national and international level, were discussed. The target group for environmental education is all people, and it is based on protecting the environment and natural resources (Ek, Kılıç, Öğdüm, & Düzgün, 2009). Environmental education can influence the behaviors of people as well as provide information, and it is necessary in order to achieve positive and lasting behavioral changes and to ensure the active participation of people in the creation of the solutions to problems (Şimşekli, 2004). Another important stage in raising individuals who have a positive attitude toward the environment and issues related to the environment is detecting the attitudes of individual and providing appropriate education for them according to these attitudes (Aslan, Uluçınar, & Cansaran, 2008).

There are many studies in the literature that were carried out to determine the environmental attitudes of university students (Çabuk & Karacaoğlu, 2003; Şama,

2003; Erten, 2005; Özmen, Çetinkaya, & Nehir, 2005; Erol & Gezer, 2006; Yücel, 2008); Kahyaoğlu, Daban, & Yangın, 2008; Sam, Sam, & Öngen, 2010; Özsoy, 2012). Although there are different scales used in environmental attitude studies, this study used the NEP developed in 1978 and revised in 2000 by Dunlap, Van Liere, Mertig, and Jones (2000), whose validity and reliability study was carried out in Turkey for the first time by Furman (1998). In this framework, our study's aim was to determine the environmental attitudes of a group of university students via the NEP scale and compare the results from this scale with their personal characteristics.

Method

Research Design

This is a descriptive survey. The study aimed to examinie the environmental attitudes of university students attending the Gazi University Industrial Arts Education Faculty.

Sample

In the study, the stratified sampling method was used and the sampling group consisted of 83 students in their third and fourth grades in the Business Administration Department who had not taken any course related to environmental education in the first and second grades of their studies at the university as well as 130 third and fourth grade students from the Family and Consumer Sciences Education Department who had taken environmental education.

Research Instruments

New environmental paradigm scale. In the study, a questionnaire consisting of two parts was used as the data collection method. In the first part of the questionnaire, while there were variables (department, age, gender, grade, educational level of father, educational level of mother, level of income, the status of receiving environmental education in university, and the status of receiving environmental education before university) related to determining some characteristics of the students. In the second part the NEP scale (Dunlap, Van Liere, Mertig, &Jones, 2000; Furman, 1998), consisting of 15 items, was used in order to determine the environmental attitudes of students. The scale was subjected to 5-point Likert-type grading (strongly disagree, disagree, neither agree nor disagree (medium), agree, strongly agree) and the participation levels of students related to each item. Expression or estimation was scored as "I strongly disagree (SD)=1," "I disagree (DA)=2," "Neutral (N)=3," "I, agree (A)=4," and "I strongly agree (SA)=5".

Data Analyses

In the study in which data were analyzed via the SPSS version 14.01 programs, the distribution of the students in sampling groups according to their personal characteristics was given with frequency and percentage values. The attitudes of students toward each item in the NEP scale were described by calculating frequency and percentage distribution as well as arithmetic mean and standard deviation

values. (The mean of the items comprising the scale was calculated by reverse scoring of the items including negativity according to the grading system stated above.) In addition to this, t-test (for two groups) and variance analysis (for three or more groups) were used in comparing mean scores in the NEP scale with the characteristics of students. A Tukey test was used for the binary comparison of the groups in variance analysis.

In the study, the students comprising the sampling group were separated into two categories according to mean scores related to the 15 items on the scale. Those students whose mean point was within *M*= 1.00-2.99 were defined as having more negative attitudes toward the environment, while the ones whose mean score was within *M*= 3.00-5.00 were defined as having more positive environmental attitudes. In this framework, a binary logistic regression analysis was carried out to predict the environmental attitudes of students via the variables as given above. As a result of the analysis, a backward stepwise method and binary logistic model were obtained.

Validity and Reliability

Factor analysis was applied to the scale used in the study, and it was detected that eigenvalue of the scale was greater than 1 and gathered under one factor, explaining 74% of the total variance. The result of Bartlett's test indicated that factor analysis can be applied (χ^2=1132.6; p<.001) and the Kaiser-Meyer-Olkin value calculated (KMO=.854) indicated that sample size was at a sufficient level. In addition, Cronbach's Alpha values were calculated for the reliability analysis of the scale. Cronbach's Alpha value was calculated as.754 for the scale consisting of 15 expressions. In the literature (Smith, 1991; Stern, Dietz, & Guagnano, 1995; Furman, 1998; Widegren, 1998; Dunlap, Van Liere, Mertig, & Jones, 2000; Vikan, 2007; Günden & Miran, 2008; Işıldar, 2008; Erdoğan 2009; Demirel, Gürbüz, & Karaküçük, 2009; Sam, Sam, & Öngen, 2010), different factor structures and reliability coefficients were detected for the scale applied in different countries and sampling groups.

Results

The findings related to the personal characteristics of the students that are within the scope of the study are given in Table 1. According to the findings in Table 1, while 61.0% (f=130) of the students within the scope of the study were receiving education in the Family and Consumer Sciences Education Department, in which they attended a course related to environmental education, 39% (f=83) were receiving education in the department of Business Administration Education but had not received any education related to the environment. Of the students, 56.3% were in their third grade and 43.7% in their 4th grade, 60.6% were female, and 43.7% were aged between 21 and 22. The fathers of 15% and the mothers of 4.7% of the students were university graduates, and the level of income of the parents of 26.8% of the participants was 1501 TL and above. Also, 48.4% of students stated that they had not received any environmental education.

Table 1
Distribution of Students According to Their Personal Characteristics (N=213)

Variable	*Group*	*n*	*Percentage (%)*
Department	Family and Consumer Sciences	130	61.0
	Business Administration	83	39.0
Grade	3	120	56.3
	4	93	43.7
Gender	Female	129	60.6
	Male	84	39.4
Age	20 and below	77	36.1
	21-22	93	43.7
	23 and above	43	20.2
Educational Level of Father	Primary school and below	90	42.3
	Middle school	32	15.0
	High school	59	27.7
	University	32	15.0
Educational Level of Mother	Primary school and below	132	62.0
	Middle school	35	16.4
	High school	36	16.9
	University	10	4.7
Level of Income	750 TL and below	62	29.1
	Between 751 and 1500 TL	94	44.1
	1501 TL and above	57	26.8
The Status of Receiving Environmental Education in University	Yes	130	61.0
	No	83	39.0
Status of Receiving Environmental Education before University	Yes	110	51.6
	No	103	48.4
Total		213	100.0

The statistics related to the NEP scale consisting of 15 items designed to determine environmental attitudes of the sample group of students are given in Table 2. An examination of arithmetic mean values of descriptive statistics presented in Table 2 shows that the environmental approaches of students are generally positive, being above the medium level of 3 points. The most positive attitude was demonstrated on the issues of "Animals and plants have at least as much right to live as do human beings" (*M*=4.59) and "We will face important environmental problems in the future unless we give up today's consumption habits" (*M*=4.11). Nearly all of the participants (96.7%) gave responses of "I agree" and "I strongly agree" in relation to the issue of the animals and plants having the right to live.

Table 2
Descriptive Statistics Related to the Environmental Attitudes of the Participants

Items		Level of Participation						
		SD (1)	DA (2)	N (3)	A (4)	SA (5)		
		%	%	%	%	%	*M*	*SD*
1. Population is increasing at a rate above the bearing capacity of the world.	f	17	14	43	78	61	3.71	1.18
	%	8.0	6.6	20.2	36.6	28.6		
2. People have the right to change the environment in the direction of their own wishes and desires.	f	100	22	35	34	22	3.68	1.45
	%	46.9	10.	16.4	16.0	10.3		
3. Human intervention in the environment generally results in disaster.	f	14	36	54	66	43	3.41	1.18
	%	6.6	16.9	25.4	31.0	20.2		
4. Man will make the world a liveable place in every condition due to his mind and creativity.	f	18	37	50	59	49	3.39	1.25
	%	8.5	17.4	23.5	27.7	23.0		
5. People overuse and consume natural resources.	f	17	11	28	66	91	3.95	1.22
	%	8.0	5.2	13.1	31.0	42.7		
6. The natural resources in the world are unlimited if we know to use and develop them correctly.	f	26	24	34	62	67	3.56	1.36
	%	12.2	11.3	16.0	29.1	31.5		
7. Animals and plants have at least as much right to live as do human beings.	f	1	0	6	72	134	4.59	.60
	%	.5	.0	2.8	33.8	62.9		
8. The environment has a balance powerful enough to remove all the negative effects of modern industrialized societies.	f	22	32	79	42	38	2.80	1.20
	%	10.3	15.0	37.1	19.7	17.8		
9. Although human beings have very special skills such as intelligence, they are still subject to the laws of nature.	f	10	20	44	77	62	3.76	1.11
	%	4.7	9.4	20.7	36.2	29.1		
10. The case referred to as an ecological crisis is very much exaggerated.	f	76	51	38	33	15	3.66	1.30
	%	35.7	23.9	17.8	15.5	7.0		
11. The Earth can be thought of as a spaceship having limited resources and living space.	f	18	37	59	61	38	3.30	1.20
	%	8.5	17.4	27.7	28.6	17.8		
12. Human beings have the right to rule over the environment.	f	91	38	35	33	16	3.73	1.35
	%	42.7	17.8	16.4	15.5	7.5		
13. The environment has a very sensitive balance that can be easily disturbed.	f	12	29	33	62	77	3.77	1.23
	%	5.6	13.6	15.5	29.1	36.2		
14. People can learn everything about the environment via their power of thinking and intelligence and take it under control as they	f	30	23	62	64	34	3.23	1.25
	%	14.1	10.8	29.1	30.0	16.0		
15. We will face important environmental problems in the future unless we give up today's consumption habits.	f	13	13	26	47	114	4.11	1.20
	%	6.1	6.1	12.2	22.1	53.5		

The lowest mean value (*M*=2.80) related to the scale was for the item "The environment has a balance powerful enough to remove all the negative effects of modern industrialized societies"; 10.3% of the participants answered "I strongly disagree," while 15% stated that "I disagree," 37.1% stated that "I agree in the medium level," 19.7% responded "I agree," and 19.8% answered "I strongly agree" (Table 2).

The findings related to comparing mean scores in NEP scale for determining environmental attitudes of the participants according to personal characteristics of students are presented in Table 3. According to the results of the analysis given in Table 3, significant relationships were detected between the environmental attitudes of students and all of their personal characteristics (department, grade, gender, age, educational level of father, educational level of mother, level of income, the status of receiving environmental education in university, and whether they had received environmental education before university). The results of the t test carried out to compare the two groups indicated that the students who had received environmental education in the department of Family and Consumer Sciences had a more positive attitude to the environment than the students from the Business Administration department who had not received any environmental education in the university, [$t(211) = 5.436$, $p < .001$]. The students receiving environmental education before university had more positive attitudes than the students not receiving that education before university, [$t(211) = 2.344$, $p = .02$]. Females and third grade students had a more positive environmental attitude than males [$t(211) = 2.393$, $p= .018$], and fourth grade students, [$t(211) = 2.154$, $p= .032$], respectively. The examination of the variance analysis results showed that environmental attitudes of the students whose fathers were university graduates and students aged 20 and below were more positive than those of students whose fathers were not university graduates, [$F(3, 209) = 7.161$, $p < .001$], and students aged over 20, [$F(2, 210) = 4.414$, $p = .013$], respectively. In addition, it was detected that the environmental attitudes of students were positive in parallel to the higher educational levels of their mother, [$F(3, 209) = 15.509$, $p < .001$], and income levels, [$F(2, 210) = 4.962$, $p = .008$].

Table 3

The Results of the T Test and Variance Analysis to Compare the Environmental Attitudes of the Participants According to Their Personal Characteristics

Variable	Group	*M*	*SD*	t	F	*p*
Department	Family and Cons. Sci.	3.802	.578	5.436	-	.000***
	Business Admin.	3.393	.460			
Grade	3	3.716	.576	2.154	-	.032*
	4	3.548	.551			
Gender	Female	3.717	.582	2.393	-	.018*
	Male	3.528	.534			
Age	20 and below	3.793 a	.600	-	4.414	.013*
	21-22	3.574 b	.581			
	23 and above	3.524 b	.429			
Educational Level of Father	Primary school	3.544 a	.524	-	7.161	.000***
	Middle school	3.504 a	.421			
	High school	3.656 a	.577			
	University	4.035 b	.653			
Educational Level of Mother	Primary school	3.489 a	.502	-	15.509	.000***
	Middle school	3.662 b	.489			
	High school	3.985 c	.600			
	University	4.366 d	.532			
Level of Income	750 TL and below	3.495 a	.487	-	4.962	.008**
	751-1500 TL	3.634 b	.572			
	1501 TL and above	3.818 c	.609			
Received Environmental Education in University	Yes	3.802	.578	5.436	-	.000***
	No	3.393	.460			
Received Environmental Education before University	Yes	3.730	.607	2.344	-	.020*
	No	3.549	.514			

***p<.001 **p<.01 *p<.05 a,b,c,d The difference between the groups containing different letters is significant.

The binary logistic regression analysis results for the prediction of the environmental attitudes of the sampling group of university students using their personal characteristics are given in Table 4. In the analysis, the last group containing the variables of the status of having environmental education in university, age, gender, grade, and having received environmental education before university and the first group containing the variables of education level of father, education level of mother, and level of income were defined as reference groups.

According to the logistic regression analysis results obtained from the backward stepwise method in Table 4, while the variables of age, grade, having received environmental education before university and (except for the university graduate group) the educational level of father were not found to be significant in the model ($p>.05$), and the variables of having received environmental education in university, gender, educational level of mother, and level of income were found to be significant for logistic model ($p<.05$). According to the odds ratios that are important parameters of the logistics model, the statements related to sub-groups belonging to the variables found to be important in analysis can be summarized as follows:

- The probability of students receiving environmental education in university having a more positive environmental attitude is 4.061 times higher than for those not having received environmental education in university.
- The probability of female students having a more positive environmental attitude is 2.512 times higher than for the males.
- The probability of students whose fathers are university graduates having a more positive environmental attitude is 1.523 higher than for the ones whose fathers had an educational level of primary school and below.
- The probability of having a more positive environmental attitude is 10.735 times higher in students whose mothers were university graduates, 5.438 times higher in students whose mothers were high school graduates, and 3.584 times higher in students whose mothers were middle school graduates in comparison to the students whose mothers had an education level of primary school and below.
- The probability of having a more positive environmental attitude is 1.843 times higher in students whose families' level of income was 1501 TL and above and 1.222 times higher in students whose families' level of income was between 751-1500 TL in comparison to students whose families' level of income was 750 TL and below.

Table 4

The Results of Logistic Regression Analysis Related to Environmental Attitudes of University Students

Variables	B	SE	Wald	SD	*p*	Odds Ratio	95% Confidence Interval	
Environmental Education in University (Receiving)	1.401	.370	14.363	1	.000***	4.061	1.967	8.382
ref: not receiving								
Age			1.851	2	.396			
Between 18 and 20	.663	.541	1.499	1	.221	1.940	.671	5.607
Between 21and 22	.128	.428	.090	1	.764	1.137	.491	2.631
ref: 23 and above								
Gender (Female)	.921	.338	7.425	1	.006**	2.512	1.295	4.872
ref: Male								
Grade (3)	-.231	.403	.331	1	.565	.793	.360	1.746
ref: 4th grade								
Education of father			5.326	3	.149			
Middle school	-.436	.479	.829	1	.363	.646	.253	1.653
High school	-1.062	.473	.243	1	.622	.346	.137	.873
University	-.325	.659	5.051	1	.025*	1.523	.799	2.630
ref: Primary school and below								
Education of Mother			14.265	3	.003**			
Middle school	1.277	.507	6.352	1	.012*	3.584	1.328	9.673
High school	1.693	.554	9.328	1	.002**	5.438	1.834	16.123
University	2.374	1.222	3.975	1	.042*	10.735	.979	117.677
ref: Primary school and below								
Level of Income			8.432	2	.026*			
Between 751 and 1500 TL (501-1000$)	.201	.393	3.861	1	.048*	1.222	.566	2.640
1501 TL and above (1001$ and above)	.295	.478	4.382	1	.041*	1.843	.527	3.426
ref: 750 TL and below								
Environmental Education before University (Receiving)	-.203	.353	.331	1	.565	.816	.408	1.631
ref: not receiving								
Constant	-1.419	.534	7.075	1	.008**	.242		

****p*<.001 ***p*<.01 **p*<.05

Conclusions and Recommendations

People's environmental awareness varies from person to person, and they also differ in their sensitivity. As a result of the fact that although the world is rapidly developing, the sensitivity of people is not increasing in parallel and, simultaneously with this development, there is water, air, and soil pollution and many related environmental problems. Finding solutions to these environmental problems can be made possible if people are aware of these problems and the subsequent risk to organic life on the planet.

In this study, it was observed that the approaches of students toward the environment were generally positive above medium level of 3 points. The item having the highest mean (having the most positive opinions) in the environmental attitude scale of students is "Animals and plants have at least as much right to live as human beings." The lowest mean value belongs to the item of "The environment has a balance powerful enough to remove all the negative effects of modern industrialized societies." In studies carried out by Sam, Sam, and Öngen (2010) and Işıldar (2008), it was determined that the issue of animals and plants having at least as much right to live as human being was the item that had the highest mean. In the study by Dunlap, Van Liere, Mertig, and Jones (2000), the most positive attitude was demonstrated on "Human intervention in the environment generally results in disaster."

Important relationships were detected among the environmental attitudes and all of the personal characteristics of the students participating in the study ($p<.05$). While the results of the t test in which both groups were compared and the group means indicated that the attitudes of university students having received environmental education were more positive than those not having received environmental education, the results of the logistic regression analysis that was applied demonstrated that the probability of having a more positive attitude toward environment was 4.061 times higher in the students having received environmental education in university than in those who had not received environmental education. The study carried out by Manzanal, Barreiro, and Carrasquer (2007) determined that university students receiving environmental education demonstrated more positive attitudes toward the environment. These findings indicate clearly that environmental education in university and having a level of knowledge are important in the issue of the environment.

It was determined in the study that females had a more positive attitude toward the environment than males and the probability of female students showing a more positive attitude was 2.512 times higher than in males. It was also determined in the statements related to the issue that females had a more positive attitude toward the environment than males. The results of our study are in agreement with other research (Gough 1994; Zeleany, Chua, & Aldrich, 2000; Hensher & King, 2002; Hart, 2003; Şama, 2003; Özmen, Çetinkaya, &Nehir, 2005; Erol & Gezer, 2006; Manzanal, Barreiro, & Carrasquer, 2007; Kahyaoğlu, Daban, &Yangın, 2008; Ek, Kılıç, Öğdüm, &Düzgün, 2009).

In the study, it was determined that the attitudes of third grade students toward the environment were more positive than those of fourth grade students. It is notable that third grade students had a more positive attitude toward the environment, although fourth grade students had been expected to have more positive attitudes. In the research carried out by Hart (2003) and Hensher and King (2002), it was determined that there was a difference between the attitudes of first and fourth grade university students toward the environment, and that fourth grade students demonstrated more positive attitudes toward the environment.

According to the results of the variance analysis in this study, it was determined that the attitudes of students whose fathers were university graduates were more positive in comparison to the other groups, and student attitudes toward the environment became more positive when the level of education of their mothers increased. According to the results of the logistic regression analysis, the probability of having a more positive attitude toward environment was 1.523 higher in students whose fathers were university graduates than in those whose fathers were primary school graduates; it was 1.523 times higher in students whose mothers were university graduates than in students whose mothers were primary school graduates. This result indicates that families with a higher level of education had an impact on the individual being raised in that family in terms of developing a more positive attitude toward the environment. According to another result obtained in the study, it was determined that as the level of income increased, the attitudes toward the environment became more positive, and the probability of students whose parents' monthly income was 1501 TL and above showing more positive attitude was 1.222 times higher than in the students with parents with an income of 750 TL and below. In the study carried out by Özmen, Çetinkaya, and Nehir (2005), it was also detected that the environmental attitude mean score was higher in the group in which income was determined as higher than expenditure.

The main results of this study, which aimed to determine the environmental attitudes of university students via the NEP scale and compare them to participants' personal characteristics, are as follows:

- The attitudes of students toward the environment were generally found to be positive above the medium level.
- The results of the t test and variance analysis carried out to compare the groups indicated that university students who had taken a course concerning the environment in university or before going to university, female students, third grade students, students with university educated parents, and students with monthly family income of 1500 TL and above have a more positive attitude toward the environment than did those who had not taken any environment courses, than males, than fourth grade students, than those with parents having education below the university level and than those with monthly family income below 1500 TL.
- According to the results of logistic regression analysis, the probability of attitudes toward the environment being positive is 4.061 times higher in

students who had environmental education in university than the ones who had not received this education; 2.512 times higher in female students than male students; 1.523 times higher in students whose fathers were university graduates than the ones whose fathers were primary school graduates; 1.523 times higher in students whose mothers were university graduates than the ones whose mothers were primary school graduates; and 1.222 times higher in students whose monthly family income was 1501 TL and above than students whose monthly family income was 750 TL and below.

Within the framework of the results given above, it can be stated that socio-economic development has an important role in the formation and growth of environmental awareness. Furthermore, in order for students to gain a more positive attitude and behavior toward the environment, beginning environmental education in primary school will increase the sensitivity toward the environment and thus contribute toward the creation of a habitable environment that will increase the well-being of society. Furthermore, to keep the environmental issue on the agenda, it is important to ensure the continuation of academic studies being carried concerning the preservation of the natural environment, which will both contribute to the literature and attract the attention of related organizations such as public and civil society institutions and the private sector.

References

Aslan, O., Uluçınar Sağır, Ş. & Cansaran, A. (2008). Çevre tutum ölçeği uyarlaması ve ilköğretim öğrencilerinin çevre tutumlarının belirlenmesi [The adaptation of environment attitude scale and determination of primary school students' environmental attitudes]. *Selçuk Üniversitesi Ahmet Keleşoğlu Eğitim Fakültesi Dergisi*, 25, 283-295.

Atasoy, E. (2005). *Çevre için eğitim: ilköğretim öğrencilerinin çevresel tutum ve çevre bilgisi üzerine bir çalışma* [For environmental education: primary school students' environmental attitudes and environmental knowledge]. Unpublished doctoral dissertation, Uludağ Üniversitesi Sosyal Bilimler Enstitüsü, Bursa.

Beyhun, N.E., Vaizoğlu, S.A., Mete, A., Okur, S., Ongun, M., Orçan, S. & Güler, Ç. (2007). Hacettepe Üniversitesi Tıp Fakültesi 2005-2006 öğretim dönemi son sınıf öğrencilerinde çevresel risk algılama düzeyi [Environmental risk perception of last grade students in Hacettepe University Medical Faculty within 2005-2006 education period]. *TSK Koruyucu Hekimlik Bülteni*, 6(5), 345-350.

Cansaran, A. & Yıldırım, C. (2010). *Çevre bilimi ile ilgili başlıca terimler ve kavramlar* (Edt. Orçun Bozkurt) [The main terms and concepts related to environmental science]. *Çevre Eğitimi*, Pegem Akademi: Ankara.

Çabuk, B. & Karacaoğlu, C. (2003). Üniversite öğrencilerinin çevre duyarlılıklarının incelenmesi [Identifying of the students about environmental sensitivity]. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi*, 36(1-2),189-198.

Demirel, M., Gürbüz, B. & Karaküçük, S. (2009). Rekreasyonel aktivitelere katılımın çevreye yönelik tutum üzerindeki etkisi ve yeni ekolojik paradigma ölçeğinin geçerliği ve güvenirliği [Effects of recreational activities participation on environmental attitudes and reliability and validity of new ecological paradigm scale]. *Spormetre Beden Eğitimi ve Spor Bilimleri Dergisi,* 7(2), 47-50.

Dunlap, R.E. & Van Liere, K.D. (1978). The "New Environmental Paradigm": A proposed measuring ınstrument and preliminary results. *Journal of Environmental Education*, 9, 10-19

Dunlap, R.E., Van Liere, K.D., Mertig, A.G. & Jones, R.E. (2000). Measuring endorsement of the new ecological paradigm: a revised NEP scale. *Journal of Social Issues*, 56(3), 425-442.

Ek, H.N., Kılıç, N., Öğdüm, P. & Düzgün, G. (2009). Adnan Menderes Üniversitesi'nin farklı akademik alanlarında öğrenim gören ilk ve son sınıf öğrencilerinin çevre sorunlarına yönelik tutumları ve duyarlılıkları [First and senior class Adnan Menderes University student's attitudes, towards environmental problems]. *Kastamonu Eğitim Dergisi*, 17(1), 125-136.

Erdoğan, N. (2009). Testing the new ecological paradigm scale: Turkish case. *African Journal of Agricultural Research*, 4(10),1023-103.

Erol, G.H. & Gezer, K. (2006). Sınıf öğretmenliği öğretmen adaylarına çevreye ve çevre sorunlarına yönelik tutumları [Prospective of elemantary school teachers' attitudes toward environment and environmental problems]. *International Journal of Environmental and Science Education*, 1(1), 65-77

Erten, S. (2005). Okul öncesi öğretmen adaylarında çevre dostu davranışların araştırılması [Investigation of preservice preschool teachers' behaviors related to environmental awareness]. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 28, 91-100.

Furman, A. (1998). A note on environmental concern in a developing country results from an İstanbul survey. *Environment and Behavior*, 30, 520-534.

Gough, H.G. (1994). Theory, development and ınterpretation of the CPI socialization scale. *Psychological Reports*, 75, 651-700.

Günden, C. & Miran, B. (2008). Yeni çevresel paradigma ölçeğiyle çiftçilerin çevre tutumunun belirlenmesi: İzmir ili Torbalı ilçesi örneği [An application of the new environmental paradigm to determining environmental attitudes of farmers: the case of Izmir, Torbali]. *Ekoloji*, 18(69), 41-50.

Hart, P. (2003). Reflections on reviewing educational research: researching for value in environmental education. *Environmental Education Research*, 9(2), 241-256.

Hensher, D.A. & King, J. (2002). Mapping stakeholder perceptions of the ımportance of environmental ıssues and the success in delivery: a university case study. *Environmental Education Research*, 8(2), 199-224.

Işıldar, G. (2008). Meslek yüksekokulları boyutunda çevre eğitiminin çevreci yaklaşımlar ve davranışlar üzerindeki etkilerinin değerlendirilmesi [Evaluation of the effects of "environmental education" on environmental approaches and behaviors of vocational school students].*Türk Eğitim Bilimleri Dergisi*, 6(4), 759-778.

Kahyaoğlu, M., Daban, Ş. & Yangın, S. (2008). İlköğretim öğretmen adaylarının çevreye yönelik tutumları [Elementary teachers' attitudes toward the environment]. *D.Ü. Ziya Gökalp Eğitim Fakültesi Dergisi*, 11, 42-52.

Manzanal, R.F., Barreiro, L.R. & Carrasquer, J. (2007). Evaluation of environmental attitudes: analysis and results of a scale applied to university students. *Science Education*, 91(6), 989-1009.

Özmen, D., Çetinkaya, A. & Nehir, S. (2005). Üniversite öğrencilerinin çevre sorunlarına yönelik tutumları [University students' attitudes towards environmental problems]. *TSK Koruyucu Hekimlik Bülteni*, 4(6), 330-344.

Özsoy, S. (2012). A survey of Turkish pre-service science teachers' attitudes toward the environment. *Eurasian Journal of Educational Research*, 46, 121-140.

Sam, N., Sam, R. & Öngen, B. (2010). Üniversite öğrencilerinin çevresel tutumlarının yeni çevresel paradigma ve benlik saygısı ölçeği ile incelenmesi [Investigating levels of self-esteem and environmental attitudes from the perspectives]. *Akademik Bakış Dergisi*, 20,1-16.

Smith, D.C. (1991). *Theoretical and methodological ıssues concerning environmental paradigms and value shifts.* Unpublished master dissertation, The Pennsylvania State University, Pennsylvania.

Stern, P.C., Dietz, T. & Guagnano, G.A. (1995). The new ecological paradigm in social-pyschological context. *Environment and Behavior*, 27, 723-743.

Şafak, Ş. & Erkal, S. (1999).Çevre eğitimi ve aile. [Environmental education and family]. *Eğitim ve Bilim Dergisi*, 23(112), 63-66.

Şahin, N.F., Cerrah, L., Saka, A. & Şahin, B. (2004). Yüksek öğretimde öğrenci merkezli çevre eğitimi dersine yönelik bir uygulama [A Practice for Student Centered Ecology Course in Higher Education]. *Gazi Eğitim Fakültesi Dergisi,* 24(3), 113-128.

Şama, E. (2003). Öğretmen adaylarının çevre sorunlarına yönelik tutumları [Teacher candidates' attitudes toward environmental problems]. *Gazi Üniversitesi Eğitim Fakültesi Dergisi*, 23(2), 99-110

Şimşekli, Y. (2004). Çevre bilincinin geliştirilmesine yönelik çevre eğitimi etkinliklerine ilköğretim okullarının duyarlılığı [The sensitivity of primary schools to develop environmental awareness, environmental education activities].*Uludağ Üniversitesi Eğitim Fakültesi Dergisi*, 17(1), 83-92.

Vikan, A., Camino, C., Biaggio, A. & Nordvik, H. (2007). Endorsement of the new ecological paradigm a comparison of two Brazilian samples and one Norwegian sample. *Environment and Behavior*, 39(2), 217-228.

Widegren, O. (1998). The new environmental paradigm and personal norms. *Environmental and Behavior*, 30, 75-100.

Yaylı, H. & Berk, Z. (2009). Çevre sorunları dersinin çevre bilinci oluşturma düzeyinin tespit edilmesine yönelik bir araştırma: Gazi Üniversitesi Kamu Yönetimi Bölümü örneği [Creating a level of awareness of environmental issues for determining the course of a research environment: an example of the Gazi University Department of Public Administration]. Uluslararası Davras Kongresi, İsparta.

Yücel, A.S. (2008). A New Motto in Environmental Protection: Green Chemistry. *Eurasian Journal of Educational Research*, 32, 145-154.

Zeleany, L., Chua, P. & Aldrich, C. (2000). Elaborating on gender differences in environmentalism. *Journal of Social Issues*, 56(3), 443-457.

Üniversite Öğrencilerinin Çevresel Tutumlarının Yeni Çevresel Paradigma Ölçeği İle İncelenmesi

Atıf:

Erkal, S., Kılıç, İ., & Şahin, H. (2012). Comparison of environmental attitudes of university students determined via the new environmental paradigm scale according to the students' personal characteristics. *Egitim Arastirmalari - Eurasian Journal of Educational Research*, 49, 21-40.

(Özet)

Problem Durumu

Çevre sorunlarının küreselleşmesi ve gezegendeki yaşamı tehdit eder noktaya gelmesi, insanların doğa ile ilişkilerini ve çevreye karşı tutum ve davranışlarını, doğaya karşı bireylerin üstlendikleri görev ve sorumluluklarını tekrar gözden geçirmeye, ekolojik kültür ve çevre bilincini tekrar tanımlamaya yöneltmiştir. Özellikle son yıllarda eğitim – öğretim ile çevre sorunları arasındaki ilişki tekrar irdelenmeye; öğretmenlerin, okulların, ders programlarının çevre duyarlılığı ve ekolojik bilinci yüksek bireyler yetiştirmeye uygunluğu tekrar sorgulanmaya başlanmıştır. Çevre sorunlarının kalıcı çözümündeki yaklaşımlarda eğitim faaliyetlerinin önemli olduğu bilinen bir gerçektir. Çevreyle ilgili olarak, tüm bireylerin hak ve görevleri bakımından çok büyük önemi olan çevre bilincinin ve duyarlılığının geliştirilmesi, bunun için de çevre eğitiminin çok ciddi bir şekilde ele alınıp uygulanması gerekmektedir. Çevre eğitimi bilgi vermenin yanında insan

davranışını da etkilemelidir. Olumlu ve kalıcı davranış değişiklikleri kazandırmak ve sorunların çözümünde bireylerin aktif katılımını sağlamak gerekmektedir. Çevre ve çevreye yönelik konular üzerinde olumlu tutuma sahip bireylerin yetiştirilmesinde önemli bir aşama da bireylerin tutumlarının tespit edilerek buna göre eğitim verilmesidir. Literatürde üniversite öğrencilerinin çevresel tutumlarının belirlenmesine yönelik birçok çalışma bulunmaktadır Çevresel tutum araştırmalarında kullanılan farklı ölçekler olmasına rağmen bu çalışmada, "Yeni Çevresel Paradigma Ölçeği" kullanılmıştır ve bireysel özeliklerine göre karşılaştırılması yapılmıştır.

Araştırmanın Amacı

Bu araştırma, üniversite öğrencilerinin çevresel tutumlarının belirlenmesi amacıyla planlanmış ve yürütülmüştür.

Araştırmanın Yöntemi

Araştırmanın örneklem grubunu, Gazi Üniversitesi'nde öğrenim gören 3. ve 4. sınıf toplam 213 öğrenci oluşturmaktadır. Bu çerçevede, üniversitede çevre eğitimine yönelik bir ders almamış olan İşletme Eğitimi Bölümü ile söz konusu eğitimi alan Aile ve Tüketici Bilimleri Eğitimi Bölümü'nde öğrenim gören öğrencilerin çevresel tutumları *"yeni çevresel paradigma ölçeği"* ile belirlenmiştir. Öğrencilerin ölçekte yer alan 15 madde veya ifadeye katılım düzeyleri için beşli Likert tipi derecelendirme kullanılmıştır. Verilerin SPSS 14.01 programı ile analiz edildiği araştırmada, örneklem grubunda yer alan öğrencilerin bireysel özelliklerine göre dağılımı frekans ve yüzde değerleri ile verilmiştir. Öğrencilerin *yeni çevresel paradigma ölçeği*ndeki her bir maddeye ilişkin tutumları frekans ve yüzde dağılımının yanı sıra aritmetik ortalama ve standart sapma değerleri hesaplanarak betimlenmiştir (Ölçeği oluşturan maddelerin ortalaması, yukarıda belirtilen dereceleme sistemine göre olumsuz içeren maddeler ters puanlandırılarak hesaplanmıştır). Bununla birlikte, *yeni çevresel paradigma ölçeği*ndeki ortalama puanların öğrencilerin özelliklerine göre karşılaştırılmasında ise (iki grup için) t testi ve (üç ve daha fazla grup için) varyans analizi kullanılmıştır. Varyans analizinde grupların ikili karşılaştırılmasında ise Tukey testinden yararlanılmıştır. Ayrıca üniversitede çevre eğitimi alma durumu, yaş, cinsiyet, sınıf, baba öğrenim düzeyi, anne öğrenim düzeyi, gelir düzeyi ve üniversite öncesi çevre eğitimi alma durumu değişkenlerinin öğrencilerin çevresel tutumlarının tahminine yönelik ikili (binary) lojistik regresyon analizi uygulanmıştır. Analiz sonucunda, geriye doğru adımsal çıkarma (backward stepwise) yöntemi ile ikili lojistik model elde edilmiştir. Diğer taraftan, araştırmada kullanılan ölçeğe yönelik faktör analizi uygulanmış olup ölçeğin özdeğeri 1'den büyük ve toplam varyansın %74'ünü açıklayan tek faktör altında toplandığı tespit edilmiştir. Bartlett's testi sonucu, faktör analizinin uygulanabileceğini ortaya koymuş (χ^2=1132.6; p< .001) ve hesaplanan Kaiser-Meyer-Olkin değeri (KMO= .854) örneklem hacminin yeterli düzeyde olduğunu göstermiştir. Ayrıca, ölçeğe ait güvenirlik analizleri için Cronbach's Alpha değerleri hesaplanmıştır. Buna göre, 15 ifadeden oluşan ölçek için Cronbac's Alpha değeri .754 olarak hesaplanmıştır.

Araştırmanın Bulguları

Öğrencilerin çevreye olan yaklaşımları genellikle orta düzeyin üzerinde olumlu olmuş ve en olumlu tutum "hayvanlar ve bitkilerin de en az insanlar kadar yaşama hakkına sahip olması" ve "bugünkü tüketim alışkanlıkları değiştirilmezse ileride çok büyük çevre problemleri ile karşı karşıya kalınması" konularında sergilenmiştir. Diğer taraftan, grupların karşılaştırılmasına yönelik uygulanan t testi ve varyans analizi sonuçları, üniversitede çevre eğitimi alan öğrencilerin almayanlara, kızların erkeklere, 3. sınıfların 4. sınıflara, anne ve babası üniversite mezunu olanların olmayanlara ve gelir düzeyi 1500 TL ve üzeri olanların daha düşük olanlara göre çevreye yönelik daha olumlu tutum içerisinde olduklarını ortaya koymuştur.

Araştırmanın Sonuçları ve Önerileri

Lojistik regresyon analizi sonuçlarına göre, çevreye yönelik tutumların daha olumlu olma ihtimali; üniversitede çevre eğitimi alan öğrencilerin almayanlara göre 4.061 kat, kız öğrencilerin erkeklere göre 2.512 kat, babası üniversite mezunu olanların ilkokul mezunu olanlara göre 1.523 kat, annesi üniversite mezunu olanların ilkokul mezunu olanlara göre 1.523 kat ve geliri 1501 TL ve üzeri olanların 750 TL ve altında olan öğrencilere göre 1.222 kat daha fazladır. Bu çerçevede, çevre bilincinin oluşması ve artmasında sosyo-ekonomik gelişimin önemli olduğu ve aileden başlamak üzere özellikle eğitim sürecinde ilköğretim yıllarından itibaren öğrencilerde çevreye karşı daha olumlu tutum ve davranış kazandırılmaya çalışılması ve bu doğrultuda (bireylerin çevre konusunda farkındalığını artıracak) eğitim programlarının planlanması ve uygulanmasının çevreye olan duyarlılığı ve dolayısıyla daha yaşanabilir bir ortam sunarak toplumun gönencini artıracağı söylenebilir. Diğer taraftan, çevre konusunda yapılacak akademik çalışmaların artarak sürdürülmesi gerek literatüre katkı, gerekse ilgili çevrelerin (kamu ve sivil toplum kuruluşları, özel sektör vb.) ilgisini çekerek konuyu gündemde tutmak açısından önemli görülmektedir.

Anahtar Sözcükler: Çevre, çevresel tutum, çevre eğitimi, üniversite öğrencisi, çevresel paradigma ölçeği