The Effectiveness of Environmental Education

on Environmentally- Sensitive Behaviors

Çevre Eğitiminin Çevreye Duyarlı Davranışlar Üzerindeki Etkisi

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Öz

Bu çalışmada, 'çevre' konularında eğitim gören üniversite öğrencilerinin, çevre ve doğa korunmasına ilişkin teorik derslerde edindikleri bilgileri, davranışlarına aktarıp aktaramadıkları, yani sahip oldukları 'çevre bilgisi' ile gösterdikleri 'çevreci davranışlar' arasında bir ilişki olup olmadığı araştırılmıştır. Ayrıca, sosyodemografik parametrelere bir örnek olarak 'cinsiyet'in çevre bilgisi ve çevreci davranış üzerindeki etkileri ölçülmüştür. Bu amaçla, çevre bilgisini ve çevreci davranışları ölçen, iki farklı bölümden oluşan anket formu çevre alanında eğitim alan, Gazi Üniversitesi, Sağlık Hizmetleri Meslek Yüksek Okulu, Çevre Sağlığı Programı öğrencilerine ve kontrol amaçlı Ankara Üniversitesi, Eğitim Fakültesi, Sosyal Bilgiler Bölümü öğrencilerine uygulanmıştır. Anketlerin değerlendirilmesi sonucunda, çevre alanında eğitim alan ve almayan öğrenciler arasında 'çevre bilgisi' alanında, istatistiksel olarak anlamlı bir fark bulunamamıştır (t=0.652, p> 0.05). Ancak, Çevre Sağlığı öğrencilerinin, çevreci davranışlar göstermek konusunda daha duyarlı oldukları, çevreyi koruyan davranış kalıplarını daha fazla uyguladıkları, istatistiksel olarak anlamlı bir şekilde ortaya konmuştur (t=2.039, p< 0.05). Yapılan çalışmada, cinsiyetin, çevre bilgisi ve çevreci davranışlar üzerinde etkili bir faktör olmadığı ortaya çıkmış, cinsiyetler arasında anlamlı bir fark bulunmamıştır. Sonuç olarak, öğrencilere neden çevreyi korumak gerektiği ve çevre sorunlarının önemi yeterince kavratıldığında, pozitif davranışlar sergileyebilmektedirler. Dolayısıyla, eğitimin her boyutunda, "çevre eğitimi" alanına özel bir önem verilmelidir.

Anahtar Sözcükler: Çevre bilgisi, çevre eğitimi, çevreci davranışlar, duyarlılık

Abstract

The main purpose of this study is to measure the environmental knowledge and behaviors of university students who are subjected to environmental courses during their education and to check if there exists a relationship between those two variables namely, environmental knowledge and behavior. For this purpose, a questionnaire with two parts; part one, for the measurement of environmental knowledge and part two, for the measurement of environmental behaviors was applied to Gazi University, Vocational School of Health Services, Environmental Health Program students who are subjected to environmental courses during their training and to Ankara University, Faculty of Educational Sciences, Social Sciences Education students as a control group who are not given any environmental lecture. The interpretation of results indicated that there is no statistically important difference among students (t=0.652, p>0.05) in terms of environmental knowledge. However, environmental behaviors of 'Environmental Health Program' students differs (t=2.039, p< 0.05) from the 'Social Science Education' students. Students who had taken environmental lectures are found behaving more environmentally way (mean 1.300) than the others (mean 1.178). Additionally, it is found that gender did not differ significantly from each other in environmental knowledge (t=1.290, p>0.05) Therefore a specific

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importance should be given to 'environmental education' in schools to promote environmentally responsible individuals.

Introduction

It is evident that, earth's natural resources are under severe threat by global warming, decrease in biodiversity, ozone layer depletion, etc. It has been estimated that approximately 60% of the ecosystem services such as fresh water, capture fisheries, air and water regulation, regulation of natural climate that support life on earth are being degraded or used unsustainably (Millenium Ecosystem Assessment, 2005. Fortunately, there is increasing awareness that the natural environment is being harmed by human actions since 1960s and there is recognition that environmental problems are only beginning and that in the coming years severity will increase (Schultz et al., 2005). Psychologists have long recognized that environmental problems are produced by maladaptive human behavior (Milfont, 2006). First representatives of this view, Maloney and Ward (1973: 584), argued that, "we must determine what the population 'knows' regarding ecology, the environment and pollution; how they feel about it; what commitments they are willing to make and what commitments they do make. There are the necessary antecedent steps that must be made before an attempt can be made to modify critically relevant behaviors".

A majority of research on social aspects of environmental issues has revealed that, how the person actually perceives environment and where he/she takes place in man-nature relationship is very important in explaining the ways people respond to their environment (Cassidy, 1997). It is apparent that man-nature relationship is extremely complex and determined not only by inner-personal characteristics, such as values, motivations, but also mediated by outer personal factors such as cost of environmental behaviors, presence or absence of supporting policies and social norms, culture etc. In the light of this, it can be explicit that what determines one's appropriate environmental approach and if he/she reflects this approach into behavior is a direct correlate of individuals' attitudinal responses and the personal characteristics such as age, education, income and knowledge. Given the antecedent evidence from the literature, it is suggested that determinants of environmental behavior are highly associated with environmental attitudes, knowledge and social and cultural factors.

Theoretical models assume that environmental knowledge is an important precondition for pro-environmental behaviors. Therefore, the relationship between knowledge and behavior is very important. In several studies, no relationship between factual environmental knowledge and ecological behavior (Amelang et al., 1977; Ignatow, (2005), Krause, 1993; Maloney et al., 1975; Maloney and Ward, 1973; Schahn and Holzer, 1990) or moderate relationship at best (Arbuthnot, 1977; Arcury, 1986; Dispoto, 1977; Dunlap, et al. (2000). Hines et al, 1986/87; Hsu, (1997); Oskamp et al., 1991; Smythe and Brook, 1980;) were found. However, it was reported that the strong relationship between education and both knowledge about the environment and attitude towards the environment would emphasize knowledge leading over attitude. Thus, a relatively high level of public knowledge about environmental issues would affect the public awareness of the problem and direct its behavior toward a more environmentally friendly attitude.

In addition to the investigation of environmental knowledge and behaviors relationship, one of the ways social scientists can promote environmentalism (to behave environmentally) is by understanding the relationship between demographic variables and environmental knowledge and behaviors. In general, gender, age, level of education, income and political

ideology have been found related with the environmental knowledge and actions. In this study, one of these demographic variables, namely gender will be examined.

Along this line, the main purpose of this study is to measure the environmental knowledge and behaviors of university students who are subjected to environmental courses during their education and to check if there exists a relationship between those two variables namely the environmental knowledge and behavior. Additionally, the relationship between gender and environmental knowledge; gender and environmental behavior are examined in the scope of this study. Finally, to investigate the students' perceptions about their main source of environmental knowledge is examined.

Method

As explained above, Hines et. al. (1986/87), in a review of relationships between environmental worldview and pro-environmental behaviors, analyzed 128 studies by grouping the predictor variables as a) knowledge, b) psycho-social variables (attitude, locus of control, verbal commitment, personal reliability and economic orientation), c) demographic variables (education level, income, age, gender, etc.). These results indicated that, "environmental knowledge" was the second important variable related to responsible environmental behavior following verbal commitment; gender was the least important (r= 0.08).

Instrument

Based on the results of Hines et. al. (1986/87), a questionnaire consisting of the three sections was constructed to gather information about environmental knowledge and behaviors of students.

Section A. Socio-demographic characteristics

Section B. Environmental knowledge

Section C. Environmentally significant behavior

Section A included questions of socio-demographic characteristics such as age and gender. As stated above, one of the ways social scientists can promote environmentalism is to understand the relationship between demographic variables and environmental knowledge and behaviors. In other words, it is necessary to ask how different parts of the population differ in regard to environmental knowledge and behavior (Scott and Willits, 1994). In this study, since most of the students were from the same income level (low) and unwilling to answer such questions, the income level was not included in the questionnaire.

Section B measures the students' level of understanding of environmental facts and concepts, in other words of their environmental knowledge. Environmental knowledge refers to the knowledge and understanding of facts, concepts, and generalizations related to the 'environmental concern and worldview'. In this section of the questionnaire, fifteen statements were given to respondents based on the study of Furman (1998), Ivy et. al. (1998) and Loges & Kidder (2000). To distinguish the respondents who have integrated their environmental awareness into their knowledge; five of the fifteen questions (statements) were worded in opposite direction and somehow in a tricky manner. The examples of the statements prepared for the environmental knowledge measurement can be seen from Table 3. Respondents were asked to give answers to the given statements as 'correct', 'false' or 'undecided'. Frequency of responses as a percentage were calculated and tabulated in Table 3.

In Section C, environmentally significant behaviors were assessed using fourteen questions constructed specifically for the purpose of this study according to conditions in Turkey. Students were asked whether each statement was 'always', 'sometimes' or 'never' in terms of their routine activities. The responses were used to measure environmental behavior. Statements were scored as follows: always=2, sometimes=1 and never=0. In all of these statements, the affirmative answer 'always' reflected a pro-environmental position and 'sometimes' reflected that the individual sometimes performed that behavior and sometimes did not, and with 'never' signifying that the individual does not perform the behavior.

In this study, Cronbach Alpha values were calculated for each scale (knowledge and behavior) to ascertain their internal consistency. Environmental knowledge and behavior measurement scales yielded alphas 0.62 and 0.69 respectively which are above 0.6 thresholds for acceptable reliability.

Sampling

Sampling is another important issue in environmental knowledge and behavior research. Most environmental knowledge studies have been based on a profession, school, community or special environmental group samples. Most of the research is based on random sampling with a limited population of representative groups as in the case of this study.

This questionnaire was tested on a sample of 33 (all of the year one students) Gazi University Vocational School of Health Services, Environmental Health Program students (GÜ-SHMYO) and 33 (randomly selected) Ankara University, Faculty of Educational Sciences, Social Sciences Education Department (AÜ-EBF) year one students as a control group. The reason behind choosing such two groups of students was to differentiate the students who are subjected to environmental courses (GÜ-SHMYO students) and who are not (AÜ-EBF students). The questionnaire was applied to the students at the end of the second semester. Since GÜ-SHMYO is a vocational school and has a two years (4 semesters) training program in total, most of the theoretical courses are given for the first 3 semesters and the students go for practice in the last semester. This means that GÜ-SHMYO students are given more than 10 courses related with the environmental issues when they were given the questionnaire. The courses are environmental philosophy and ethics, water pollution and control, solid wastes, ecology, environmental biology, environmental microbiology, food sanitation, public health, air pollution, etc. The details of the courses and contents will be given in the '**Analysis of Environmental Knowledge and Behavior' section.**

Findings

Gender versus Environmental Knowledge and Behavior

There were 23 males (34.8 %) and 43 females (65.2 %) in the study. The ages of the students ranged between 19-21. When the impact of gender is examined, the means for gender did not differ significantly from each other for environmental knowledge (t=1.290, p>0.05) and behavior (t=1.276, p>0.05). The literature survey indicated that some researchers (Stern et al.,1995; Tarrant and Cordel, 1997; Zelezny et al., 2000) discussed the relationship between environmental, knowledge, behavior and gender and concluded that, the relationship between these variables is weak and inconsistent. In some studies, there may be a tendency for men to express greater support for environmental behaviors (Scott and Willis, 1994), whereas in some studies opposite results may be found showing women as more environmentalist (Loges and Kidder, 2000; Stern et al, 1995; Tarrant, 1997).

Analysis of Environmental Knowledge and Behavior

As it can be seen from Table 1, students' mean environmental knowledge and behavior scores were found as 1.014 and 1.239 respectively. It means that students have environmental knowledge and **sometimes** behaving in an environmentally significant way. That is, for some environmental actions, students sometimes behave in an environment friendly manner but sometimes not. As explained above, in the 'Method' section, in all statements the affirmative answer 'always' reflected a pro-environmental position and 'sometimes' reflected that the individual sometimes performed that behavior and sometimes did not. For example, almost 91% of the students **always** turn off the unnecessary lights; however, 42% of them **sometimes** consume organic foods, sometimes not. The reasons behind such a situation might be economical, ecological or psychological. That might be investigated in a more detailed study.

When the environmental knowledge and behavior scores of both groups are compared; there is no statistically important difference (t=0.652, p> 0.05) in terms of environmental knowledge. However, environmental behaviors of 'Environmental Health Program' students differs (t=2.039, p< 0.05) from the 'Social Science Education' students. From Table 1 it can be seen that, students who had taken environmental courses are found behaving more environmentally way (mean 1.300) than the others (mean 1.178).

Table 1.

Statistics of Environmental Knowledge and Behavior

		N	Mean	Std. Deviation	t	p
Environmental Knowledge	Vocational School of Health Services (Environmental Health Program	33	1.028	0.155	0.652	0.517
	Social Science Education	33	1.001	0.176		
	Overall	66	1. 014	0.165		
Environmental Behavior	Vocational School of Health Services (Environmental Health Program)	33	1.300	0.225	2.039	0.046
	Social Science Education	33	1.178	0.260		
	Overall	66	1. 239	1.286		

GÜ-SHMYO students, as explained above, are given theoretical courses such as Basic Biology, Chemistry, Climatology and Environmental Philosophy and Ethics in the first semester. Those basic courses aim to give students the fundamentals of natural and environmental sciences such as natural cycles, their impacts, organic and inorganic components of the planet earth, etc. Especially, during the 'Environmental Philosophy and Ethics' lectures students are expected to understand the importance of nature, its mechanisms, where we are and what we are in the nature as a human being and the intrinsic value of nature. As a content of this course, historical perspective of environmental problems, population growth and human impacts on environment and environmental problems, carrying capacity of the earth, the effects of religion and belief on environment, scientific approaches and its impacts on environment, technology-environmental protection mutual relationship, sustainable development and ethical approaches are taught.

In the second semester, some of the courses such as air pollution, solid wastes, food sanitation; it is aimed to train students about the sources of pollution and prevention techniques in general. For example, they are taught the structure and the layers of the atmosphere,

anthropogenic and natural sources of air pollution, global air pollution problems such as acid rains and green house effect and their prevention methods. The content of the 'solid wastes' course can be defined as; what solid waste is and its classifications are, solid waste handling methods such as sanitary landfill, wild dumping, combustion and composting, recycling, reuse and recovery of solid wastes, sources and handling methods for hazardous wastes, radioactive wastes and medical wastes. Again 'Ecology' is one of the major courses given in the first year of the program. It is aimed to increase the consciousness of students about nature conservation by way of teaching the factors effecting natural systems. Feedback mechanisms and system concept, structure and functions of ecocystems, food chain, food webs and food pyramid, populations and communities, concepts of niches, energy and nutriens flow through living systems, balance in nature and the principles of ecology and ecosystems, biologıcal diversity and importance are the subjects given in the content of this course. Therefore, it is clear that, GÜ-SHMYO students must have a certain knowledge of environment compared to AÜ-EBF students.

Correlation of Environmental Knowledge and Behavior

As stated before, one of the aims of this study is to examine the relationships between environmental knowledge and behaviors clarify if respondents having a higher level of environmental knowledge. Although we were expecting, statistically significant positive correlation between environmental knowledge and environmentally significant behaviors, as can be seen from Table 2 there is no statistically significant correlation between those two variables. That is, environmental knowledge (indirectly environmental education) is not supported as a significant moderator of the environmental behavior. This might be explained as, students are aware of the environmental problems and their level of environmental knowledge is quite satisfactory. However they do not seem to internalize the knowledge they possess. There is a lack of ethical values being different than the laws, which are informal and unwritten value based conducts of the individuals towards environment. In other words, "internalized ethical values" necessary to make individuals behave in a real environment friendly way by feeling themselves as the part of it and feeling nature inside themselves. Environmental ethics is a useful tool for individuals to adopt their environmental knowledge into their daily routine lives.

Table 2.
Correlation Matrix of the Environmental Knowledge and Behavior

		Env. Knowledge	Env. Behavior
Environmental Knowledge	Pearson Correlation	1	-0,049
	Sig. (2-tailed)	.	0,698
	N	66	66
Environmental Behavior	Pearson Correlation	-0,049	1
	Sig. (2-tailed)	0,698	.
	N	66	66

Students' Environmental Knowledge

In the second phase of the study, items prepared to measure environmental knowledge and behavior were analyzed one by one as percentages for all students in general and for both groups of students separately and compared.

Table 3 shows the frequency of responses (in percentages) to each item in the knowledge section of the questionnaire. The students had the highest mean score in the recycling item. Almost all of the students (98.4%) are aware of the benefits of recycling in terms of its economic and ecological value. The organization of several recycling campaigns especially for paper, tin cans and packaging materials in all levels of schools (primary, secondary schools and universities), pilot recycling projects implemented by municipalities might be the major reason for this increased awareness of students. Additionally, media (newspapers, magazines, radio and TV) is another important factor affecting the recycling activities through several promotions implemented. In the overall, 89.2 % of the students know the fact that, "in the last 40 years, the population of the world nearly doubled." The accelerated increase in environmental problems might be the reason for the higher percentages of responses. There is no statistically important difference for this question for environmental health students (87.9 %) and social science education students (90.6%).

Students' understanding of the items on environmental issues that have had a more global implication such as acid rain, deforestation, the greenhouse effect and ozone depletion is fairly higher. For example, 84.8% of the students know that ozone depletion is a global problem and effected even in Turkey. Although 77.3% of the students could correctly identify sulfur dioxide as the main cause of acid rain, and that deforestation were understood by 78.1 % of the students; they do not know the sources of energy well. Only 64.6% were reported the correct answer for the item "almost 90% of our energy comes from fossil fuels (coal, oil and gas)".

Table 3.

Frequency of Responses (in percentages) to Each Knowledge Item

Item: Paraphrase of question	Department	Correct response		False response		Undecided	
		n	%	n	%	n	%
1. The 'greenhouse effect' and 'ozone depletion' are, as a matter of fact, the same phenomena.	Environmental Health Program	12	36.4	21	63.6	-	-
	Social Sciences Education	20	60.6	12	36.4	1	3.0
	Overall	32	48.5	33	1.5	1	50.0
2. The 'greenhouse effect' is a result of burning coal and oil.	Environmental Health Program	25	75.8	4	12.1	4	12.1
	Social Sciences Education	12	36.4	17	51.5	4	12.1
	Overall	37	56.1	21	31.8	8	12.1
3. The 'greenhouse effect' causes an increase of the Earth's average temperature.	Environmental Health Program	29	87.9	2	6.1	2	6.1
	Social Sciences Education	19	57.6	9	27.3	5	15.2
	Overall	48	72.7	11	16.7	7	10.6
4. Chloroflorocarbons (CFCs) are responsible for ozone depletion.	Environmental Health Program	28	84.8	2	6.1	3	9.1
	Social Sciences Education	22	66.7	2	6.1	9	27.3
	Overall	50	75.8	4	6.1	12	18.2
5. Depletion of ozone does not effect people in Europe and Turkey.	Environmental Health Program	27	81.8	2	6.1	4	12.1
	Social Sciences Education	29	87.9	2	6.1	2	6.1
	Overall	56	84.8	4	6.1	6	9.1
6. Deforestation adds up to the greenhouse effect.	Environmental Health Program	29	90.6	-	-	3	9.4
	Social Sciences Education	21	63.6	5	15.2	6	18.2
	Overall	50	78.1	5	7.6	9	14.1
7. Using high octane gasoline (super) in cars helps to reduce air pollution.	Environmental Health Program	21	63.6	6	18.2	6	18.2
	Social Sciences Education	11	33.3	5	15.2	17	51.5
	Overall	32	48.5	11	16.7	23	34.8
8. Recycling should be encouraged for the protection of environmental resources as well as economical advantages.	Environmental Health Program	33	100	-	-	-	-
	Social Sciences Education	30	96.8	-	-	1	3.2
	Overall	63	98.4	-	-	1	1.6
9. Increase in CO_2 concentration in the air causes acid rains	Environmental Health Program	6	18.2	27	81.8	-	-
	Social Sciences Education	24	72.7	-	-	9	27.3
	Overall	51	77.3	-	-	15	22.7

Item: Paraphrase of question	Department	Correct response		False response		Undecided	
		n	%	n	%	n	%
10. Almost 90 % of our energy comes from fossil fuels (coal, oil and gas).	Environmental Health Program	22	66.7	2	6.1	3	9.0
	Social Sciences Education	20	62.5	8	25.0	4	12.5
	Overall	42	64.6	10	15.2	13	20.0
11. Plastics decompose in the nature by time.	Environmental Health Program	25	75.8	6	18.2	2	6.1
	Social Sciences Education	29	87.9	1	3.0	3	9.1
	Overall	54	81.8	7	10.6	5	7.6
12. Greenpeace is an non-governmental organisation acting only in U.S. for nature conservation issues.	Environmental Health Program	7	21.9	7	21.9	18	56.3
	Social Sciences Education	13	39.4	8	24.2	12	36.4
	Overall	20	30.8	15	23.1	30	46.2
13. Mediterranean monk seals are on the brink of extinction.	Environmental Health Program	8	24.2	25	75.8	-	-
	Social Sciences Education	25	78.1	3	9.4	4	12.5
	Overall	50	76.9	3	4.6	12	18.5
14. In the last 40 years, the population of the world nearly doubled.	Environmental Health Program	29	87.9	-	-	4	12.1
	Social Sciences Education	29	90.6	1	3.1	2	6.3
	Overall	58	89.2	1	1.5	6	9.2
15. Only some animals are in danger of extinction. Plants are not.	Environmental Health Program	30	90.9	3	9.1	-	-
	Social Sciences Education	26	78.8	6	18.2	1	3.0
	Overall	56	84.8	9	13.6	1	1.5

*: There exist a statistically significant difference (p<0.05)

However, this energy question is one of the 3 items showing statistically significant difference among two groups of students (mean= 0.878; p<0.05). The main cause of difference is the undecided students. Other items two groups of students differ from each other were; the 'greenhouse effect' and 'ozone depletion' are, as a matter of fact, the same phenomena (mean=0.515; p<0.05); the 'greenhouse effect' is a result of burning coal and oil (mean=0.803; p<0.05) and using high octane gasoline (super) in cars helps to reduce air pollution (mean=1.182; p<0.05). In the first one as opposed to expected, percentage of correct answer (60.6%) for social science education students is higher. However, in other two items, the percentage of environmental health students reported correct answer is much higher (75.8% and 63.6% respectively). This might be explained by the technical perspective of the items. Since the social science education students are not given technical environmental courses, they may not know such items.

There was strong awareness among students about the extinction of species; 76.9% of them know Mediterranean monk seals are on the brink of extinction and the level of knowledge is quite high about the extinction of plants with 84.8%.

The item with the lowest mean score was item 12 which tested students' knowledge of environmental NGOs, specifically Greenpeace. Only 30.8 % of the students choose the correct answer. This might be explained as that students do not know the international Non Governmental Organizations (NGO) and they may not follow the developments about environmental in the world.

Students' Environmental Behavior

Students' general environmental behavior was measured in terms of their responses to saving paper, electricity and water, using less of private transport, attending environmental conferences and exhibitions and consumer behavior. As given in Table 1, the majority of respondents indicated that they sometimes had (mean 1.239) engaged in the environmentally protective behavior. However as expected environmentally significant behaviors of 'Environmental Health Program' students differs (t=2.039, p< 0.05) from the 'Social Science Education' students.

Table 4 shows the frequency of responses (in percentages) to each item in the environmental behavior section of the questionnaire. About 90.9% agreed with the statement "I turn off unnecessary lights"; 80.3% reported that; "they prefer public transport facilities in their daily lives"; and 78.8% reported that, "they close the tap while brushing teeth". However, these high scores might be interpreted in terms of economical benefits rather than behaving environmentally. In other words, environmentally beneficial actions may also follow from non environmental concerns, such as a desire to save money, confirm a sense of personal competence, or preserve time for social relationship. To understand any specific environmentally concern behavior requires further empirical analysis which out of the scope of this study.

Slightly smaller percentages (12.1%) of respondents participate in recycling activities as given in Table 4. This might be explained by the effects of external and internal barriers. That is, recycling is not understood well by decision makers. Therefore there is a lack of obligatory rules to promote recycling and collection services of recyclables. However, the perception of barriers by respondents did not measured in the context of this study. It might be proposed for further studies of environmental behavior.

A lower percentage (12.1%) is obtained in the statement "I am member of Environmental NGO(s) and support them financially (13.6%)". This means that people are not engaged in environmental activities voluntarily and they do not make any contributions to NGOs. This might be explained with the economical constraints as in the recycling case. While people have difficulty in tackling problem of hunger in Turkey; supporting the NGOs financially is a luxury for them.

Table 4.

Summary of Responses to Each Behavior Item

Item: Paraphrase of question	Department	Always		Never		Sometimes	
		n	**%**	**n**	**%**	**n**	**%**
1. I collect recyclable materials separately in my home.	Environmental Health Program	3	9.1	15	45.5	15	45.5
	Social Sciences Education	5	15.2	16	48.5	12	36.4
	Overall	8	12.1	31	47.0	27	40.9
2. I try to lessen the amount of waste produced in my home.	Environmental Health Program	20	60.6	4	12.1	9	27.3
	Social Sciences Education	19	57.6	5	15.2	9	27.3
	Overall	39	59.1	9	13.6	18	27.3
3. I close the tap while brushing my teeth.	Environmental Health Program	24	72.7	2	6.1	7	21.2
	Social Sciences Education	28	84.8	-	0.0	5	15.2
	Overall	52	78.8	2	3.0	12	18.2
4. I turn off unnecessary lights.	Environmental Health Program	32	97.0	-	0.0	1	3.0
	Social Sciences Education	28	84.8	-	0.0	5	15.2
	Overall	60	90.9	-	0.0	6	9.1
5. I prefer public transport facilities in my daily life.	Environmental Health Program	27	81.8	1	3.0	5	15.2
	Social Sciences Education	26	78.8	3	9.1	4	12.1
	Overall	53	80.3	4	6.1	9	13.6
6. I am the member of environmental Non Governmental Organizations.	Environmental Health Program	3	9.1	28	84.8	2	6.1
	Social Sciences Education	5	15.2	24	72.7	4	12.1
	Overall	8	12.1	52	78.8	6	9.1
7. I support environmental NGOs financially.	Environmental Health Program	4	12.1	23	69.7	6	18.2
	Social Sciences Education	5	15.2	19	57.6	9	27.3
	Overall	9	13.6	42	63.6	15	22.7
I take care of environmental policies of the parties into consideration while voting.	Environmental Health Program	24	77.4	4	12.9	3	9.7
	Social Sciences Education	18	54.5	5	15.2	10	30.3
	Overall	42	65.6	9	14.1	13	20.3

Item: Paraphrase of question	Department	Always		Never		Sometimes	
		n	%	n	%	n	%
9. I prefer to consume organic foods although they are expensive.	Environmental Health Program	12	38.7	3	9.7	16	51.6
	Social Sciences Education	12	36.4	10	30.3	11	33.3
	Overall	24	36.4	13	20.3	27	42.2
. I prefer to consume environment-friendly products although they are expensive.	Environmental Health Program	17	51.5	2	6.1	14	42.4
	Social Sciences Education	16	48.5	2	6.1	15	45.5
	Overall	33	50.0	4	6.1	29	43.9
11. I do not prefer packaged products during shopping.	Environmental Health Program	8	24.2	6	18.2	19	57.6
	Social Sciences Education	3	9.1	17	51.5	13	39.4
	Overall	11	16.7	23	34.8	32	48.5
12. I try to use the two sides of papers.	Environmental Health Program	30	90.9	-	0.0	3	9.1
	Social Sciences Education	26	78.8	2	6.1	5	15.2
	Overall	56	84.8	2	3.0	8	12.1
13. I do not use perfumes, deodorants, etc. containing CFCs.	Environmental Health Program	17	51.5	4	12.1	12	36.4
	Social Sciences Education	8	24.2	13	39.4	12	36.4
	Overall	25	37.9	17	25.8	24	36.4
. I try to participate in conferences, films and meetings on environmental issues.	Environmental Health Program	11	33.3	2	6.1	20	60.6
	Social Sciences Education	8	24.2	9	27.3	16	48.5
	Overall	19	28.8	11	16.7	36	54.5

The statistically significant difference among two groups exists for the items related with the consumer behavior (items 11. and 13.) such as buying products with less packaging and checked if the aerosols they bought contained CFCs. Environmental health students behave in more environment friendly way compared to social science education students. This was an expected result, since they are more educated on environmental issues and have higher awareness. However, it should be mentioned that for each item, less than 50.0 % of the students showed that they had always engaged in green consumerism. For example for the above items, only 16.7% of the students prefer to buy the products with less packaging or only 37.9% of the students had took into consideration if the aerosols containing CFCs or not.

Students' Perception of Source of Environmental Information

A question concerning the source of students' environmental knowledge is added to the questionnaire in order to understand their perception of how to obtain information on environmental issues. They are asked "what is the most effective tool getting their environmental knowledge" and the alternatives are given as a) relatives and friends, b) Media, c) Governmental organizations, d) Internet, e) Schools, f) Nature itself, and finally, g) Non Governmental Organizations. When investigating the students' main source of environmental information, it was found that the students gained most of their environmental knowledge from out of school sources rather than from general education at school. The 32.7% of the students indicated that, they gathered most of their environmental information from the media (printed and electronic). However, one of the most striking result of this part of the study is, Environmental Health Program students indicated their main source of environmental information different from the AÜ- EBF students as "nature itself". This might be explained as, GÜ-SHMYO students are aware of the natural mechanisms and the ecosystem concept and thus they can evaluate the natural reactions and phenomenon.

Conclusion

There has been increasing interest in behavioral components of environmental problems in recent years since human action is the critical element in environmental degradation (Hardin; 1991; Ponting, 2000; Tanner, 1999). Additionally, it is often argued that the promotion of responsible environmental behavior, which has been largely approached through environmental education processes and methodologies, is inconsistent at best in its research and practice. Along this line, present study is mainly designed to measure environmental knowledge and its relation with environmentally significant behaviors of University students. Furthermore, those two variables are examined for their interaction with gender.

When gender, in relation to environmental knowledge and environmentally significant behaviors is, examined it is seen that, gender has not shown statistically significant difference from the respondents' knowledge and behavior.

The results of the analysis done for the measurement of the students' environmental knowledge and their environmental behavior indicated that both GÜ-SHMYO and AÜ-EBF students have environmental knowledge and sometimes behaving in an environmentally significant way. In terms of the environmental knowledge, as opposed to expected there is no statistically important difference among students those who are given environmental courses and who are not (t=0.652, p> 0.05). When environmental behaviors are compared, 'Environmental Health Program' students differs (t=2.039, p< 0.05) from the 'Social Science Education' students. It might be concluded that, students who had taken environmental courses are found to be behaving in a more environmentally way (mean 1.300) than the others (mean 1.178). This might be explained as due to philosophical and ethical background given about a fragile harmony in the nature and balances in the ecosystem, their sensitivity to environmental problems and awareness increases.