THE KNOWLEDGE AND ATTITUDES OF PRIMARY SCHOOL TEACHING STUDENTS TOWORDS ENVIRONMENT

(Sample of Atatürk University)

Sınıf Öğretmenliği Öğrencilerinin Çevreye Yönelik Bilgileri ve Tutumları

(Atatürk Üniversitesi Örneği)

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ABSTRACT

In this study, the basic knowledge level on the environmental concepts of the students who do and do not take Environmental Education courses and the attitude of the students of Primary Teacher Training towards the environment are compared. The population of the research is consisted of first and third year students of the Primary Teacher Training of 2008-2009 academic year at Kazim Karabekir Educational Faculty of Atatürk University. Sample group is comprised of 272 students. The research is a descriptive study in which method of surveillance is used. The findings of the study is that the third year students who take environmental education related to the basic concepts of the environment are more successful than the first year students who have not taken any course about the environment yet; the attitude of the teacher candidates related to the environment shows differences which can be accounted for the gender but it is a general consensus that these differences fade away depending on their attainment of the environmental education.

Key words: *Environment, environment education, attitude towards the environment, primary school teaching.*

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ÖZET

Bu çalışmada, Çevre Eğitimi dersi alan ve almayan Sınıf Öğretmenliği Anabilim Dalı öğrencilerinin çevre ile ilgili temel kavramlar hakkındaki bilgi düzeyleri ve çevreye ilişkin tutumları karşılaştırılmıştır. Araştırmanın evrenini, 2008-2009 öğretim yılında Atatürk Üniversitesi Kazım Karabekir Eğitim Fakültesi Sınıf Öğretmenliği Anabilim Dalı'nda öğrenim gören birinci ve üçüncü sınıf öğrencileri oluşturmaktadır. Araştırma betimsel bir çalışma olup, Tarama modeli kullanılmıştır.

Elde edilen bulgular, çevre ile ilgili temel kavramlar konusunda Çevre Eğitimi dersi alan üçüncü sınıf öğrencilerinin almayan birinci sınıf öğrencilerine göre daha başarılı oldukları; öğretmen adaylarının çevresel tutumlarının cinsiyete göre farklılaşırken, Çevre Eğitimi dersini alma durumuna göre ise farklılaşmadığı yönündedir.

Anahtar Kelimeler: *Çevre, çevre eğitimi, çevreye yönelik tutum, sınıf öğretmenliği.*

INTRODUCTION

Natural surroundings that do not recognize any political limitation and are threatened by environmental problems are now more often become the subjects in international meetings and protocols. In Tbilisi conference (1977) which is one of them, the targets of the Environmental education are put forward as, the awareness of the improvement of economic, social, political and ecological cooperation in the urban and rural areas, information about the improve and protection of the environment, judgment of values, manner, responsibility and providing opportunities to the individuals in acquiring skills and improving new models of manners in all individuals, groups and communities (Braus 1995:46, Deniş&Genç, 2007:21). In Tbilisi conference the categories of environmental education objectives are awareness, knowledge, attitudes, skills and participation (http://unesdoc.unesco.org/images/0003/000327/032763eo.pdf).

Tezbaşaran (2008:1) defined *"attitude"* term as, positive or negative tendency, learned against a particular object, condition, establishment, concept or other people. Environmental attitude defined as learned tendencies in the form of consistent behaviours against environment either positive or negative (Pelstring, 1997, Aydın, Coskun, Kaya & Erdönmez, 2011:1887). However, it is obvious that no success can be expected from the environmental education unless the questions of how the attitudes towards the environment are formed and how the unfavorable ones can be changed (Şama, 2003:100).

Environment education has an interdisciplinary nature. Thus, from the pre-school to the higher education, environmental education should be attained. Environmental education (Erten, 2004), is defined as the process of occurrence and their consequences to protect the environment attitudes, values, knowledge, and skills development and demonstration of environmentally friendly behavior. Environmental education has to influence on cognitive, affective and psycho-motor domains of the individuals and while transferring ecological knowledge on one hand, provides people to improve their attitudes and converts them to behaviors towards the environment on the other hand (Unterbruner, 1991:98, Erten, 2005:92).

Some researchers as Jaus (1984), Ramsey (1993) and Ramsey & Rickson (1976) have reported that students exposed to environmental courses demonstrated an increase in responsible environmental behavior and an awareness of environmental issues (Bradley,Waliczek & Zajicek,1999:17). In contrast, Newhouse (1991) stated that environmental attitudes are most likely formed as a result of life experiences (Bradley,et al.,1999:17).

There have been numerous research studies searching for the attitudes of students towards environmental education in schools.

In their research Yılmaz, Morgil, Aktuğ and Göbekli (2002) reached the finding that students' knowledge on the environmental issues taught in schools is not sufficient enough.

Özdemir, Yıldız, Ocaktan and Sarışen in their research (2004) titled as the "awareness and sensitivity of the Medical Science students about the environmental issues", concluded that they are not only a group supposed to be sensitive; and they do not

even show necessary interest, but also bring up the matter that their education was not adequate.

Tuncer, Ertepinar, Tekkaya and Sungur (2005) found that, students' environmental attitudes differ depending on their gender and type of school that they attend. Berberoğlu and Tosunoğlu (1995) developed a scale to assess the attitudes of the university students towards the environment. Uzun and Sağlam (2007) put forward their opinion that the programs are inadequate to bring up teachers as individuals sensitive to the environment. Şama (2003), through his environmental attitude scale, examined the attitudes of the university students towards the environment with some variables. In their study, Kilbourne, Beckmann, Lewis and Dam (2001) examined the difference between enviromnental attitudes of university students in England, Denmark, and the United States. Yılmaz, Boone and Anderson (2004), in the scale they prepared themselves, evaluated the attitude points of the students towards the environment according to some variables.

METHODS

This research is a descriptive study comparing prospective students' knowledge level on the basic concepts of the environment and obtaining their attitudes towards the environment.

Problem Statement

The purpose of this research was to compare the environmental knowledge level of first year students who had not received and third year students who had previously received environmental education.

The research questions guided this study are as follows:

1. Is there a difference between the knowledge level of the prospective teachers who had received environmental education and the ones who had not?

2. Is a difference in the attitudes of the prospective teachers who had received environmental education and the ones who had not?

3. Is a difference in the attitudes of the prospective teachers toward environment in terms of gender?

4. Is there a significant difference between the interest of the students about the environmental issues and their attitudes towards the environment?

The Importance and the Limitations of the Study

The research is important for the fact that it sign the attitudes of the Primary School teacher candidates towards the environment and contributes to their level of knowledge of the basic environmental concepts and to the development of a positive attitude towards the environment.

This research is limited with opinions of the students and the students themselves in first year and third year in 2008-2009 academic year of Classroom Teaching Department at Kazim Karabekir Faculty of Education in the University of Atatürk.

Population and Sampling

This research was carried out in Erzurum (Map 1).The population of the research consists of the first and third year students attending to Classroom Teaching Department in 2008-2009 academic year at the Faculty of Kazim Karabekir of the University of Atatürk. The sampling of the research is represented by total 272 students, 103 of which are the third year students and 169 are the first year students of Primary School Teacher Training.

Map 1. Location map of the Erzurum (https://www.google.com.tr/#q=iller+haritası)

Data Collection and Analysis

In order to investigate the level of the knowledge of prospective teachers on the environment, a knowledge inventory containing 3 multiple-choices and 7 open-ended questions are prepared. *Environmental Attitude Scale* consisted of 21 items which was developed by Şama (2003) was used to collect the attitudes of the teacher candidates towards environment. For the positive statements in the environmental attitude scale in order 5-4-3-2-1, and for the negative statements 1-2-3-4-5 points were given. It was thought that the more the points the more affirmative the attitudes of the students towards the environment are. The reliability coefficient of the scale (Cronbach Alfa) was found as 0.77. Cronbach Alfa coefficient re-calculated was 0.79.

Attitude and knowledge changes were evaluated using the Statistical Package for Social Sciences (SPSS 11.5). The findings from the knowledge inventory were analyzed using descriptive statistics such as frequencies and percentages. The findings from the attitudes of the prospective teachers were analyzed using t-test and ANOVA. The results were tested at the level of 0.05 minimum.

FINDINGS AND COMMENTS

Findings about Personal Information

Table 1. *State of the students' gender and according to their class, taking part in the sampling*

	Female		Male		Total	
	f	%	f	%	f	%
First year students	67	39.7	102	60.3	169	100
Third year students	56	54.3	47	45.7	103	100
Total	123	45.2	149	54.8	272	100

As seen in Table 1, the sampling of the first year students consists of 39.7 % female and 60.3 % male students whereas the third year students are 54.3 % female and 45.7 % are male students. 169 (62.1 %) of the teacher candidates included in the sampling of the research are first years students and 103 (37.9 %) of them are third year students (Table 1)

Table 2. *State of being a member to any environmental establishment*

	f	**%**
Yes	5	1.8
No	267	98.2
Total	272	100

The interest in the environmental institutions or the NGOs among the students taking part in the sampling is almost nothing. Only 5 (1.8 %) students stated that they are members to an environmental institution (Table 2).

Table 3. *Environmental sensitivity of the students participating in the sampling*

	I am so sensitive		I am sensitive		I am not sensitive		I am not sensitive at all		Total	
	f	%	f	%	f	%	f	%	f	%
First year students	18	10.6	108	64.0	43	25.4	-	-	169	100
Third year students	18	17.4	65	63.2	20	19.4	-	-	103	100
Total	36	13.2	173	63.6	60	23.2	-	-	272	100

Students were asked to express themselves in respect to environmental sensitivity. More than 76 % of the Primary School teacher candidates are seen to consider themselves

as "*very sensitive*" or "*sensitive*". Though the difference is little, third year students expressed themselves more sensitive to the environment. As seen in the Table 3, 80 % of the third year students receiving Environmental Education and 74 % of the first year students not receiving environmental education considered themselves sensitive to the environment.

Table 4. *The most important environmental problems threatening the future of mankind*

Primary Problems	**f**	**%**
Global Warming	120	44.1
Terror,Wars and Globalization	93	34.2
Water Pollution	22	8.1
Industrialization and rapid population	4	1.5
Deceasing of species and natural resources	10	3.7
Dangerous Wastes	7	2.6
Deforestation	6	2.2
Use of Fossil energy and air pollution	8	2.9
Uncontrolled urbanization and infrastructure problems	2	0.7
Erosion	-	-
Total	272	100

Classroom Teaching Department students participating in the sampling thought *Global Warming* (44.1 %) and *Terror-wars and globalization* as the leading problems threatening the future of the mankind (Table 4).

Table 5. *The most important source contributing to the awareness of people about the environment*

Sources	**f**	**%**
News and Magazines	21	7.7
TV Channels	68	25.0
Universities	10	3.7
Volunteer organizations and non-governmental organizations	99	36.4
Families and Schools	58	21.3
The Ministry of *Environment*	16	5.9
Total	272	100

According to these findings, the most important source that contributes to the awareness of the people are *voluntary institutions and civil society organizations* (36.4 %). Visual Media (25.0 %) and family and students (% 21.3) follow them (Table 5). It is found noteworthy that it is mentioned by only 3.7 % of the university students who were supposed to form a great amount of environment education.

Findings on the Students' Level of Some Basic Concepts

Some questions were addressed to the primary school teacher candidates participating the sampling to determine the students' level of knowledge about the basic concepts. The findings attained from the first year and the third year students illustrated in Table 6.

Table 6. *Students' dispersal of the answers on the open-ended questions*

Questions	**First year students**						**Third year students**					
	True		*False*		*No comment*		*True*		*False*		*No comment*	
	f	%	f	%	f	%	f	%	f	%	f	%
Q1	31	18.3	130	76.9	8	4.8	75	72.8	25	24.3	3	2.9
Q2	16	9.5	139	82.3	14	8.2	79	76.7	23	22.4	1	0.9
Q3	56	33.1	68	40.2	45	26.7	83	80.0	20	19.1	1	0.9
Q4	8	4.8	28	16.5	133	78.7	93	90.3	3	2.9	7	6.8
Q5	-	-	44	26.0	125	74.0	46	44.6	25	24.3	32	31.1
Q6	85	50.3	3	1.8	81	47.9	77	74.7	7	6.8	19	18.5
Q7	21	12.5	84	49.7	64	37.8	79	76.8	12	11.6	12	11.6
Q8	35	20.7	69	40.8	65	38.5	37	36.0	52	50.4	14	13.6
Q9	5	2.9	25	14.8	139	82.3	26	25.2	40	38.9	37	35.9
Q10	80	47.3	-	-	89	52.7	84	81.5	-	-	19	18.5

The students were asked to answer to the question "what is the *most important* international agreement to control and reduce the effects of the greenhouses gases?" (Q 1). 18 % of the first year students who do not take Environmental Education and more than 72 % of the third year students who take Environmental Education answered correctly.

In the answers to the question i.e. "What is the place where an organism lives and develops called?" (Q 2) a similar result was seen. More than 76 % of the students receiving Environment Education answered the question correctly while only 9.5 % of the students not receiving Environment Education answered correctly (Table 6).

According to the findings, the concept of Ecosystem which means "living beings in a particular region and their inanimate surroundings" (Q 3) is answered by 33 % of the first year students and 80 % of the third year students (Table 6).

The question "what the deterioration and removal of the existing ecosystem and replacement of this ecosystem by another ecosystem is called?" (Q 4) is given correct answers by 4.8 % of the first year students who do not take Environment Education and more than 90 % of the third year students who take Environment Education. Our attention was drawn with the fact that 78 % of the students left the question blank (Table 6).

It is observed that none of the students who do not take Environment Education answered the question i.e. "what is the common name for the chemical substances used in agriculture for the plant diseases, harmful insects and weed and that can be very serious pollutants for the environment" (Q 5). About 44 % of the students taking Environment Education answered this question correctly (Table 6).

To the question "What is the name given to the increase of the average temperature of the atmosphere and oceans with the effects of greenhouse gasses?" (Q 6) more than half (50.3 %) of the first year students not receiving Environment Education gave the right answer that is *global warming.* On the other hand 74.7 % of the third year students who receive Environment Education answered correctly (Table 6).

However, to the open-ended question of "what is Ecology?" (Q 7) 12.5 % of the first year students and 76.8 % of the third year students responded correctly.

For the question addressed to the students i.e. "what is environmental pollution?" (Q 8), 36 % of the third year students who receive Environment Education answered correctly whereas 20 % of the first year students who do not receive Environment Education received correctly (Table 6).

If Table 6 is scrutinized the question "how acid rains are formed?" (Q 9) is the least answered question. 2.9 % of the first year students not receiving Environment Education with 25.2 % of the third year students receiving Environment Education answered correctly.

Finally, primary school teacher candidates are asked "to express what they know about the civil society organizations and establishments in our country and in the world" (Q 10). 47 % of the first year students and 80 % of the third year students could give answer to this question (Table 6). Most of the students answering the question mentioned TEMA and Greenpeace. Moreover, a few students gave answers such as Natural Life Protection Foundation, ÇEVKO, ÇEKÜL and Ministry of Environment.

In general, we can draw a conclusion that 67.9 % of the third year students taking Environment Education and 33.7 % of the first year students not taking the Environment Education succeeded.

Findings about the the Attitudes of the Students towards the Environment

In this section the environmental attitudes of the teacher candidates are examined according to some variables.

Table 7. *Students' attitude points depending on their gender*

Gender	**N**	$\overline{X}$	**SD**	**t**	**p**
Female	123	83.5997	9.92911	3.903	0.00
Male	149	79.2806	7.98657		

Whether the attitudes of the students towards the environment change depending on the gender is put forward with a t-test. According to this, there is a significant difference between the attitudes of the students towards the environment and the gender in favor of the girls ($p=0.00<0.05$). The attitudes average point of the females is ($X=83.5997$) which is ($X=79.2806$) more than that of the males (Table 7). This finding shows parallelism with the researches of Şama (2003), Erol (2005), Alım (2007) and Deniş&Genç (2007).

Table 8. *The attitude scores of the third year prospective teachers receiving environment education and the first year students not receiving environment education*

Class	**N**	$\overline{X}$	**SD**	**t**	**p**
First year students	169	80.8453	9.48246	-,898	0.370
Third year students	103	81.8710	8.53687		

Whether the attitudes of the teacher candidates differ depending on their Environment Education attainment or not is examined with t-test. The average attitude point of the students receiving Environment Education is seen to be higher than that of those who do not receive it. But no significant difference was found in the interest of the third year students receiving Environment Education and the first year students not receiving Environmental Education (p=0.370>0.05) (Table 8). This finding shows parallelism with the results of the research of Deniş&Genç (2007).

Table 9. *Findings about whether there are differences among the opinion of the students and their sensitivity*

	Sum of Squares	df	Mean Square	F	Sig.
Among Groups	404,290	3	134,763	1.627	
Within Groups	22202,678	268	82,846		0.183
Total	22606,968	271			

When Table 9 is examined, the average attitude scores of the students who consider themselves as *sensitive* and *very sensitive* participating in the sampling are seen to be higher. It is noticed that the students who consider themselves as *least sensitive* have a very low average attitude points. No significant difference was found between the opinions and attitudes towards the environment of the teacher candidates (p=0.183).

RESULTS AND SUGGESTIONS

According to the outcomes of the study, the interest of the students participating the sampling to the environmental institutions and the NGOs is almost nothing. This finding shows parallelism with some of the researches done earlier (Erol, 2005; Alım, 2007). This may originate from the lack of interest as well as it may be because of the unawareness of the society towards these environmentally friendly organizations. Thus, it might be beneficial to make researches respectively.

It is very satisfying that most of the teacher candidates (% 76) consider themselves as *sensitive* and *very sensitive* towards the environment. This potential should be evaluated well and they should be made active with the environmental establishment and organizations.

The teacher candidates participating the sampling thought *global warming* to be the most important threat to the future of mankind. This matter is being discussed and debated a lot in the written and visual media accounting for this.

Voluntary establishments and *civil society organizations* are the most important sources contributing to the awareness of the people about the environmental issues. *Universities* which can play vital role in this matter are not considered to be in one of these sources. The role of the universities in making people sensitive to the environment should not be forgotten. Media, voluntary establishments, Ministry of Education and universities should work in coordination with each other and outdoor activities where students can play active role should be organized.

When the knowledge level of the primary school teacher candidates about the basic concepts of the environment is scrutinized the third year students are seen to be more successful in all the addressed questions about all the concepts than the first year students. That the third year students had Environment Education in the second year accounts for this. Therefore, the courses with the content of environment should be paid more importance and regardless of the field, there should be arrangements to teach them everyone. The most known concept among the first year students is *global warming* whereas the *pesticide* is the least known concept. *Succession* is the most well known concept among the third year students while *acid rains* are the least known one.

The average attitude points of the female students is (X=83.5997) higher than those of the male students (X=79.2806). A significant difference was attained in favor of the female students between the gender of the students and their attitudes towards the environment. This finding is parallel to those of Şama (2003), Aydın (2010), Aydın and Çepni (2010), Aydın, Coskun, Kaya and Erdönmez, (2011), Erol (2005), Alım (2007) and Deniş&Genç (2007). It will be beneficial to conduct studies to find out the reasons of the differences and necessary precautions should be taken.

The average attitude point of the third year students receiving Environment Education is higher than that of the first year students not receiving Environment Education. But from statistical point of view the difference in their attitude towards the environment is not significant ($p=0.370>0.05$). This confirms the findings of Deniş&Genç (2007) research.

It is pleasing that a great number of the students participating the sampling consider themselves as *sensitive* and *very sensitive* towards the environment. No significant difference was found among the opinions of the ones considering themselves sensitive and ones not sensitive ($p=0.183$).

As a result, the ones to remove environmental problems and protect the environment are the people who damage it most. For this, environment education should be paid more attention and individuals with affirmative attitudes towards the environment should be brought up. Thus, the environmental attitudes of the students who would be the administrators of the future should be put forward and everyone should have the sense of responsibility to spread the environmental education.

REFERENCES

Alım, M. (2007). "Öğretmen Adaylarının Çevre Sorunlarına İlgileri". III. Sosyal Bilimler Eğitimi Kongresi, 18-20 Haziran 2007, Adana.

Aydın, F. (2010). Coğrafya Öğretmen Adaylarının Çevre Sorunları ve Çevre Eğitimi Hakkındaki Görüşleri (Gazi Üniversitesi Örneği). *International Online Journal of Educational Sciences (IOJES)*, 2(3): 818-839.

Aydın, F. & Çepni, O (2010). University Students' Attitudes towards Environmental Problems: A Case Study From Turkey. *International Journal of the Physical Sciences*, 5(17):2715-2720.

Aydın, F. Coskun, M. Kaya, H. & Erdönmez, İ. (2011). Gifted students' attitudes towards environment: A case study from Turkey. African Journal of Agricultural Research, Vol. 6(7): 1876-1883.

Berberoğlu, G. & Tosunoğlu, C. (1995). Exploratory and confirmatory factor analyses of an environmental attitude scale (eas) for Turkish university students. *Journal of Environmental Education*, 26 (3), 40-44.

Bradley, J. C. Waliczek, T. M. & Zajicek, J. M. (1999). Relationship between environmental knowledge and environmental attitude of high school students, *Journal of Environmental Education*, 30(3):17-21.

Braus, J. (1995). Environmental Education. *Bioscience*, 45 (6), 45-52.

Deniş, H. & Genç, H. (2007). Çevre bilimi dersi alan ve almayan sınıf öğretmenliği öğrencilerin çevreye ilişkin tutumları ve çevre bilimi dersindeki başarılarının karşılaştırılması. Mehmet *Akif Ersoy üniversitesi Eğitim Fakültesi Dergisi*, 13, 20.

Erol, G.H. (2005). Primary school teaching department sophomore students' attitudes toward environment and environmental problems], Pamukkale Üniversitesi, Fen Bilimleri Enstitüsü (Yüksek Lisans Tezi), Denizli.

Erten, S. (2004). What is environmental education and environmental awareness, environmental education should be how? *Çevre ve İnsan Dergisi*, 65, 66.

Erten,S. (2005). Okul Öncesi Öğretmen Adaylarında Çevre Dostu Davranışların Araştırılması, H.Ü. Eğitim Fakültesi Dergisi,28, Ankara.

Jaus, H.H. (1984). The development and Retention of Environmental Attitudes in Elementary School Children. T*he Journal of Environmental Education*,18 (1), 15-21.

Kilbourne, W.E. Beckmann, S.C. Lewis, A. & Dam, Y.V. (2001). A multinational examination of the dominant social paradigm in environmental attitudes of university students. *Environment and Behavior*, 33 (2), 209-229.

Newhouse, N. (1991). Implications of Attitude and Behavior Research for environmental Conservation. T*he Journal of Environmental Education*, 22 (1), 26-32.

Özdemir, O.Yıldız, A. Ocaktan E. & Sarışen, Ö. (2004). Awareness of environmental issues and sensitivities of students of the Faculty of Medicine, *Ankara Üniv. Tıp Fak. Mecmuası*, 57 (3),117-127.

Pelstring, L. (1997). Measuring environmental attitudes: The new environmental paradigm. http://trochim.human.cornell.edu/gallery/pelstrng/lisap.htm

Ramsey, C.E. & Rickson, R.E. (1976). Environmental Knowledge and attitudes. T*he Journal of Environmental Education*, 8 (1), 10-18.

Ramsey, J.M. (1993). The effects of ıssue Investigation and Action Training on Eighth grade students' Environmental Behavior. *The Journal of Environmental Education*, 24 (3), 31-36.

Şama, E. (2003).Teacher candidates' attitudes toward environmental problems, *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi*, 23 (2),107.

Tezbaşaran, A.A (2008). Likert Tipi Ölçek Hazırlama Kılavuzu.Üçüncü Sürüm e-Kitap, http://www.academia.edu/1288035/Likert_Tipi_Olcek_Hazirlama_Kilavuzu.

Tuncer, G. Ertepinar, H. Tekkaya, C. & Sungur, S. (2005). Environmental attitudes of young people in Turkey: Effects of school type and gender, *Environmental Education Research*, 11,215-233.

UNESCO, Intergoverment Conference on Environmental Education, Final Report, http://unesdoc.unesco.org/images/0003/000327/032763eo.p

Unterbruner, U. (1991). Umwelterziehung und die angst jugendlicher vor umweltzerstörung, Kiel.

Uzun, N. & Sağlam, N. (2006). The environmental education in secondary school and teachers opinions on environmental education programs], *Eğitim Araştırmaları Dergisi*, 26.

Yılmaz, A. Morgil, I. Aktuğ, P. & Göbekli, I. (2002). Knowledge of the secondary school and unıversity students on the environment, environmental concepts and problems and suggestions], *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 22,156-162.

Yılmaz, Ö. Boone, W. J. & Anderson, H. O. (2004). Views of elementary and middle school Turkish students toward environmental ıssues. *International Journal of Scienece Education*,26 (12),1527-1546.

https://www.google.com.tr/#q=iller+haritası