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Exploring gifted students' environmental perspectives: A case study in Turkey

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The purpose of this research is to examine the attitudes of primary students that study at gifted students' school (BĐLSEM). A total of 156 primary school students participated in the research in Ankara BĐLSEM schools in 2010-2011 academic year. As data gathering tool "Environment Attitude Scale" developed by Atasoy (2005) was used in the study in the form of survey model. In data analysis phase, frequency, percentage, arithmetic mean, t test and one way variance analysis (ANOVA) were used. According to the results of the study, gifted students have positive attitudes towards environment. Another result indicated that gifted students' attitudes towards environment showed significant differences according to "gender" and "class level" variants.

Key words: Environment, environment education, environment attitudes, gifted students.

INTRODUCTION

Raised and qualified human accumulation is the greatest source of power of the nations. When the development profile of people from past to date is examined, the leading individuals are always special people. These are a few people but influence and lead a majority of the society. These people are the Gifted people that lead people in doing significant deeds with leading, profitable and productive skills "Gifted or special skilled" people. In relation to this "who is a gifted person?", "What are the differences from other individuals?" questions should be clarified. Gifted children are the individuals whose capacity levels are determined as they have high level of capacity more than their peers by the experts in terms of general and special skills. They have distinguished skills and so capable of doing high skilled jobs but can be found out only by Professional people in this field. The Gifted have necessity of differentiated curriculum and services more than ordinary teaching programs in order to be useful for themselves and for the society.

Gifted person is the individual who has higher performance than his peers in terms of intelligence, creativity, arts, sport, leading capacity and needs service and activities that that his/her school can not provide. These individuals should be found out in early ages and should be raised up in an appropriate way. Their

differences from other people is advanced mental abilities, special skills in particular areas, sensitivity and creativity, productivity and intensive motivation. Çamurlu stated that two of every a hundred children have gifted skills and he stated that Eflatun said "golden children" for this children (Çamurlu, 2001).

To provide the gifted improvement of their skills and use their capacity at the highest level is of great importance for now and the future of our country. There has been some researches about the Gifted both national (Enç, 1973; Ataman, 1976; Akkutay, 1984; Akarsu, 2001; Çamurlu, 2001; Gökdere and at al., 2003a; Gökdere and at al., 2003b; Çepni and at al., 2003; Çepni and Gökdere, 2004; Davaslıgil, 2004; Uzun, 2004) and international (Davis and Rimm, 1998; Renzulli, 1999; Schultz, 2000; Gallagher, 2000; Diffly, 2002) literature.

The "environment" term does not have a common and widespread definition, it was defined in various ways by thinkers. For example Erinç (1984) defined "environment" term as; living conditions and areas affected and got affected by living things that were related there with vital ties. Environment is the series of conditions that a living thing survive (Özey, 2001). The area that was affected by living things in various ways and influence them is called environment or area (Güney, 2004). In geographical terms, environment is defined as the area in geographic environment or in the frames of the world's ecosystem dimensions (Doğanay, 1993: 46).

Attitude includes the evaluations of an individual about

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an object that he/ she realizes (good-bad, beautiful-ugly, positive or negative). Attitude is a positive or negative tendency, learned against a particular object, condition, establishment, concept or other people (Tezba aran, 1997: 1). Environmental attitude can be defined as "learned tendencies in the form of consistent behaviours against environment either positive or negative" (Pelstring, 1997). Uzun (2007: 20) stated environmental attitude as; all the positive or negative opinions towards the useful behaviours of people such as fears, angriness, disorders, self conscious and being ready for the solutions of environmental problems.

People's attitudes towards environment begins to develop in very early ages in general. According to some researchers, to raise a student's knowledge about environment leads a way in developing a positive attitude towards environment. Some researchers think that participation of students in the environmental courses increase the responsible environmental behaviours and realize environmental problems around them whereas some think that life experience is more influential (Bradley et al., 1999). Education for environment is an interdisciplinary field of study and its constituents are informing, being informed and getting motivated to it. Environmental education has both cognitive and audial purposes. Cognitive purposes involve increasing ecological culture and environmental literacy of an individual, audial purposes contain forming values, behaviours and attitudes against environment and environmental problems. The main aim of environmental education is helping to raise individuals donated with knowledge, skills and values that support and provide responsible behaviours (Doğan, 1997).

Education for environment is not a kind of education giving only high ecological sensitivity and environmental conscious and forming an eco-individual; it also aims to include living healthily and taking responsibility alongwith a sustainable life, social notion and global piece. Education for environment is adopting ecological knowledge in various levels and character and defending and practising them for the whole lifetime and also a process of lifelong learning without ceasing through forming a responsibility feeling for the related region and country even the whole planet and the universe. This process is for providing sensitive and positive behavioural changes and aims to raise environment lover world citizen that posses responsibility feeling and adopt environmentalism as a philosophy of life (Atasoy, 2005).

Purpose of the research

Today because of the increase in environmental problems environmental education has been of crucial importance. When the significance of human beings in the solutions of environmental problems is considered, the necessity of acquiring conscious of individuals can be

seen clearly. Taking this point into consideration the importance of education and environmental attitudes should not be ignored. At this point there is the necessity of determinin the environmental problems and finding solutions to these problems. Authentic studies to be conducted in these areas will be useful in the solutions of these problems. When the related literature is examined there has not been any studies investigating gifted students' attitudes towards environment. Taking this into account this study is thought to be a useful one in completing a gap in the related field. Limited number of researches were carried out on primary level students' attitudes towards environment except gifted students (Dimopoulus and Pantis, 2003; Jeronen and Kaikkonen, 2002; Leeming et al., 1995; Makki et al., 2003; Aydın and Co kun, 2010; Yılmaz and Andersen, 2004; Worsley and Skrzypiec, 1998; Atasoy, 2005; Gökçe et al., 2007; Alp et al., 2006; Aslan et al., 2008; Đ yar, 1999; Özpınar, 2009; Ayhan, 1993; Yılmaz et al., 2004; Tuncer et al., 2004; Atasoy and Ertürk, 2008; Ürey, 2005; Meydan and Doğu, 2008).

In spite of the majority of the environmental problems in Turkey there has been limited research on it. This study in which gifted students' attitudes towards environment according to some variables is significant in terms of illuminating a less studies topic in Turkey. This research is also important for providing gifted students with increasing sensitivity towards environment and being as an example fort he forthcoming researches in the related field. The general aim of the research is to determine the gifted students' attitudes towards environment. The following questions were tried to be answered in the frames of this general aim:

1. What are the gifted students' attitudes towards environment?
2. Is there any significant difference between the attitudes of gifted students towards environment and gender?
3. Is there any significant difference between the attitudes of gifted students towards environment and class level?

METHOD

Research model

With this research in survey model, university students' attitudes towards environmental problems varied or not according to various variables were tried to be searched. Survey model is a research approach based on describing an event in the past or present as it is (Karasar, 2007:77).

Study group

Primary students at Ankara (Turkey) BDLSEM (Center of Science and Arts) schools in the first term of 2010-2011 academic year participated in the research. Total number of students is 156 in the research. 70 of these students (45%) are girls and 86 are boys (55%). 34 of the research students are third grades, 43 of them are

fourth grades, 40 are fifth grades, 24 are 6th grades and 15 of them are 8th grade students.

Data gathering tool

The questionnaire was developed by Atasoy (2005) in order to be used to determine the attitudes of gifted students towards environment. The scale including 25 statements was prepared according to quantable levels as "I completely agree", "I agree", "I am not sure", "I do not agree" and "I completely disagree". Every item in the scale was given five if it is in favour of environment whereas the least environmentalist item took 1 point. Thus the possible scores that can be taken in the scale is at least 25 and 125 the most. Four of the items in the environment attitude scale (7, 17, 19 and 24) were designed negatively and their scores were adjusted the other way around. When the distribution of 25 question in the environment attitude scale, 5 questions were related to animals and plants, 5 questions were about ecological problems and environmental pollution, 5 questions were about consuming and saving, 5 questions were about human and environment relations and environmental sensitivity and 5 questions are related to energy resources and using energy. The Cronbach Alpha reliability coefficient was found as $\alpha=0.82$. This scale which was tested in terms of validity and reliability was decided to be used in this research based on the views of two academicians that have studies in the related field.

RESULTS

Data analysis

The gifted students' views towards environment attitude scale were evaluated through arithmetic mean and standard deviation. Whether gifted students' views towards environment attitude scale indicate significant difference according to gender, independent samples *t*-test and to determine the significant difference according to class levels variable, one way analysis of variance (ANOVA) was used.

Gifted students' attitudes towards environment

Arithmetic mean and standard deviation values of gifted students' attitudes towards environment scale were given in Table 1.

As shown in Table 1, arithmetic mean of gifted students' attitude environment scale in the research is 4.33. This value indicate that gifted students exhibit a positive attitude towards environment.

The highest average items among the answers of gifted students through the environment attitude scale are given in order of:

1. I switch off the unnecessary lamps at home or school ($\bar{X}=4.72$)
2. I think saving water, electricity and energy in all of the houses and workplaces is crucial ($\bar{X}=4.67$)
3. I would be happy for feeding and looking after pets

such as cats, dogs or birds ($\bar{X}=4.65$)

The lowest average items among the answers of gifted students through the environment attitude scale are given in order of;

1. I do not think that erosion and forest fires may lead to serious environmental problems in our country ($\bar{X}=3.64$)
2. I do not think that sufficient plantation takes place instead of dried, burnt and cut forests ($\bar{X}=3.95$)
3. I do not care whether the goods I buy are harmful to nature or not ($\bar{X}=3.97$)

Comparison of gifted students' attitudes towards environment according to "gender" variable

Whether there is a significant difference between gifted students' attitude scores towards environment and their gender was determined with independent *t*-test. *T*-test results of gifted students' attitudes towards environment according to gender was shown in Table 2.

When the table is examined, there is a significant difference between gifted students' attitudes towards environment according to gender [$t_{(154)} = 2.954$; $p < 0.05$]. This finding can also be commented as there is a meaningful relation between gifted students' attitudes towards environment and their gender.

Comparison of gifted students' attitudes towards environment according to "class level" variable

Whether there is a significant difference between gifted students' attitude scores towards environment and their gender was determined with "one way variance analysis (ANOVA)". Descriptive statistics of gifted students' attitudes towards environment according to "class level" variable is shown in Table 3, ANOVA results were shown in Table 4.

According to the analysis results, of Gifted students' attitude scores towards environment indicated significant difference according to "class level" variable [$F_{(4-151)}=5.656$; $p < 0.05$]. This finding can also be inferred as there is a relation between gifted students' attitude scores towards environment and class levels. In order to find which class levels caused the difference, "Multi Comparison Test (LSD)" was used. The results of this test were given in Table 5.

As shown in Table 5, there is significant difference between 3rd and 5th grades, 3rd and 6th grades, 3rd and 8th grades, 4th and 5th grades, 5th and 6th grades and 5th and 8th grades of gifted students' attitude scores towards environment.

DISCUSSION

The gifted students' answers to the attitude scale are

Table 1. Arithmetic mean and standard deviation values of gifted students' attitudes towards environment scale.

No	Statements in the scale	\bar{X}	S
1	I switch off the unnecessary lamps at home or school.	4.72	.62
2	I do not buy the food products harmful to my health or environment in the supermarkets.	4.21	1.01
3	I warn my parents not to buy vegetables and fruit with hormones during shopping.	4.16	1.17
4	When I buy a car for me, I will choose a one that pollutes the environment the least.	4.23	1.08
5	I warn my family about buying energy saver lamps and electric goods to our home..	4.35	.95
6	Environmental problems not being taken into consideration by politicians or directors make me upset.	4.34	1.06
7	I drop liter to anywhere in picnic areas, beaches or forests that do not contain waste baskets.	4.10	1.36
8	I think there must be more green areas and flowers in my neighbourhood.	4.64	.81
9	I do not make fires in the forestry and picnic areas.	4.04	1.27
10	I save water and electricity at school and home.	4.64	.71
11	I have pity on hungry and injured dogs that do not have owners in the streets.	4.61	.81
12	Fighting camels, roosters and making fun of bears make me upset.	4.52	.93
13	Being a member of an environmental association or establishment for protecting plants and animal species make me rather happy.	4.36	.90
14	Some firms that try some food products, medicine and weapons over animals should be closed.	4.48	.94
15	I would be happy for feeding and looking after pets such as cats, dogs or birds.	4.65	.92
16	I think saving water, electricity and energy in all of the houses and workplaces is crucial.	4.67	.74
17	I do not care whether the goods I buy are harmful to nature or not.	3.96	1.40
18	In heating the buildings gas should be used instead of wood and coal.	4.50	.91
19	I do not think that erosion and forest fires may lead to serious environmental problems in our country.	3.64	1.75
20	I do not think that sufficient plantation takes place instead of dried, burnt and cut forests.	3.95	1.34
21	I think that people sometimes use cars unnecessarily and consume energy without a feeling of responsibility.	4.33	1.08
22	The first nuclear power station that is being thought to be built in a few years makes me worried.	4.01	1.26
23	Unplanned using of energy resources in Turkey makes me worried in terms of our future.	4.50	.94
24	There are enough animals in Turkey so extinction of some animals does not make me worried.	4.27	1.33
25	The use of harmful energy of some factories to the environment makes me worried.	4.42	.95
	General Average	4.33	1.05

changing in between these two values. Among the gifted primary students in the research; 76% stated that they do not buy the food products harmful to their health or environment in the supermarkets, 75% They warn their parents not to buy vegetables and fruit with hormones during shopping, 75% When they buy a car, they will choose a one that pollutes the environment the least, 83% environmental problems not being taken into consideration by politicians or directors make them upset, 90% they want more green areas and flowers in their neighbourhood. 71% they do not

make fires in the forestry and picnic areas, 97% switch off the unnecessary lamps at home or school, 92% save water and electricity at school and home, 90% have pity on hungry and injured dogs that do not have owners in the streets, 82% Being a member of an environmental association or establishment for protecting plants and animal species make them rather happy, 93% saving water, electricity and energy in all of the houses and workplaces is crucial, 83% In heating the buildings gas should be used instead of wood and coal and 85% unplanned using of energy resources in Turkey makes them worried.

The arithmetic mean of the gifted students' attitudes towards environment is 4.33. The highest arithmetic mean item among the answers given by the gifted students to the environment attitude scale was "I switch off the unnecessary lamps at home or school" and the lowest arithmetic mean item was "I do not think that erosion and forest fires may lead to serious environmental problems in our country. This result indicated that the Gifted students have positive attitudes towards environment.

When related literature was examined, there has not been researches on the gifted at primary level in Turkey but there are studies on primary students' attitudes. The results of these studies.

Gökçe et al. (2007) concluded that primary school students have high level of attitudes (n = 789) towards environment. Also the primary students' attitudes towards environment indicate significant differences according to gender and academic success levels variants but there is not a significant difference according to parents' educational levels. Ba (2010) stated that primary students' attitudes towards environment show significant

Table 2. T-test results of gifted students' attitudes towards environment according to gender.

Gender	N	\bar{X}	S	Sd	t	P
Female	70	111.5286	9.96330	154	2.954	0.004*
Male	86	105.8953	13.17755			

*p<0.05.

Table 3. Descriptive statistics of gifted students' attitudes towards environment according to "class level" variable.

Grade	N	\bar{X}	S
3rd	34	112.9118	8.15519
4th	43	112.5116	10.21291
5th	40	104.9750	14.59450
6th	24	105.1667	11.16153
8th	15	100.9333	12.27929
Total	156	108.4231	12.13741

Table 4. ANOVA Results of gifted students' attitude scores towards environment according to "class level" variable.

Source of the variance	Sum of Squares	df	Mean Square	F	P
Between groups	2975.356	4	743.839	5.656	0.000
In-groups	19858.721	151	131.515		
Total	22834.077	155			

*p<0.05.

Table 5. LSD Test results of gifted students' attitude scores towards environment according to "class level" variable.

Grade (I)	Grade(J)	Average difference (I-J)	Standard deviation	Significance level
Grade 3	Grade 4	.40014	2.63184	.879
	Grade 5	7.93676	2.67506	.003*
	Grade 6	7.74510	3.05743	.012*
	Grade 8	11.97843	3.55468	.001*
Grade 4	Grade 3	-.40014	2.63184	.879
	Grade 5	7.53663	2.51920	.003*
	Grade 6	7.34496	2.92203	.013*
	Grade 8	11.57829	3.43891	.001*
Grade 5	Grade 3	-7.93676	2.67506	.003*
	Grade 4	-7.53663	2.51920	.003*
	Grade 6	-.19167	2.96102	.948
	Grade 8	4.04167	3.47211	.246
Grade 6	Grade 3	-7.74510	3.05743	.012*
	Grade 4	-7.34496	2.92203	.013*
	Grade 5	.19167	2.96102	.948
	Grade 8	4.23333	3.77458	.264
Grade 8	Grade 3	-11.97843	3.55468	.001*
	Grade 4	-11.57829	3.43891	.001*
	Grade 5	-4.04167	3.47211	.246
	Grade 6	-4.23333	3.77458	.264

* p<0.05.

differences according to their gender, class levels, parents' occupations and parents' educational levels in his study carried out over 817 primary education students in Bodrum Turkey. In his study, Atasoy (2005) concluded that female students had high environmental attitude tendencies than male students that was carried out over 1118 primary education students in Bursa Turkey. In the study it was expressed that primary students in Turkey are not at sufficient levels in terms of environmental knowledge and attitude. The reason for his situation was indicated as lack of students' environment sensitivity, environmental ethic, love of nature and having a slight ecological culture. In Ozpınar's study (2009) that was carried out over primary 4 and 5th grade students' views about environmental problems, the answers given through the environmental problems scale referred to "I agree". Primary students' views towards environmental problems indicated significant difference according to class levels, gender, fathers' graduation, mothers' graduation, fathers' jobs, mothers' jobs, fathers' income, mothers' income and the dwelling areas of students. In their study, Sağır et al. (2008) stated that students attitudes did not indicate significant difference according to class levels and gender variables. It was also determined that students' participation towards environmental activities was so low and inadequate in realizing environmental problems and finding solutions to these problems.

In Urey (2005)'s research carried out over primary teachers and students' attitudes towards environment, it was concluded that environmental activities at schools are not at desired level in terms of application and being widespread.

Alp et al. (2006) stated that primary students' knowledge on environment is insufficient but they have positive attitude towards environment in his study over 1140 primary students.

Another investigation was made by Kasapoğlu (2008) to explore the relation between environmental attitude and behavior of 8th grade students. General attitudes of them were found positive towards the environment. They were aware of importance of energy saving and caring plants, animals. The results showed that students' positive attitudes were not reflected as a behavior. The researcher revealed that knowledge and attitudes were not enough to behave responsibly.

Tuncer et al. (2004) concluded in their study on how 6th grade students' attitudes got influenced by gender and urban-rural area variations that students living in urban areas have more positive attitudes towards environment.

In Özdemir (2003)'s study over primary 8th grade students' ($n = 1000$) environment knowledge and environment conscious levels, concluded that female students have more knowledge and conscious on environment than male students. Also with the increase of environment knowledge their conscious rise up

consequently.

In Bonett and Williams (1998)'s study on primary students' attitudes towards environment and nature, they concluded that students have positive attitudes towards environment. They determined that students are aware of the environmental problems and the potential interference between nature and human beings.

Medyan-Doğu (2008) carried out their survey in Konya city center with 678 students and in the result of the research, primary second phase students' views towards environmental problems indicated significant differences according to class levels and their ages but did not contain a difference according to gender variable.

Tecer (2007) investigated primary students' environmental sensitivities towards environmental problems and the effects of socio-demographic characters over these sensitivity levels in his research. These students with high socio economic levels have more sensitivity and tendencies towards environment than students with low socio economic background and female students are more responsible than male students.

The Gifted students' attitudes towards environment seem at low levels in the answers against some of the items in the questionnaire (such as 17, 19, 21). In order to rise up the sensitivity of Gifted students and students at primary education, student centered teaching methods based on constructivist approach should be used in the lessons (Geography, Social Studies, Biology, Science, Environment and Human) where environmental issues are thought. As known, teacher centered teaching methods are insufficient in students' learning the lessons and putting them into practice. Instead of these teaching methods the methods in which students are active and teachers are responsible for the guidance in the process should be applied. There are learning approaches such as cooperative learning, problem based learning, project based learning that complete constructivist approach providing students establish connections between their present knowledge and new learned knowledge, being able to use their own observations and learning in new areas so as to adopt the attained knowledge and experience. It was put forth with the experimental studies that student centered teaching methods increase the success and attitudes of students in teaching of environmental issues. Onal (2008) and Bilgi (2008) determined in their studies that environmental teaching conducted with active teaching model in geography courses has been more influential and left positive tracks more than teacher centered teaching methods in terms of environmental knowledge and attitude. In this context they concluded that active learning strategies and methods can be put into practice in secondary geography learning. Demirkaya et al. (2003) concluded that in environment education 4MAT teaching system can be used and increase success. Açı and Demircioğlu (2004) and ahin et al. (2004) stated that student centered

teaching methods in the teaching of environmental issues increase the attainment more than teacher centered teaching methods.

Using traditional methods in environment education may prevent getting the expected attainment. Environment education should not be a process that the teacher gives the lesson and leaves the class. In environment education, students should think, discuss and find alternative solutions to the environmental problems. Because of this educational programmes that aim to have the students learn the necessary knowledge and try to improve students' skills should be preferred instead of traditional methods. The issues should be chosen among the daily lives of students in environment education (Yücel ve Morgil, 2002).

The gifted have the feeling of sensitivity for the people around them. Because of this they always question around. The sensitivity and investigation skills towards the problems they encounter in the environment are worthy of consideration. The gifted pay attention to the details that nobody realizes and want to learn. They search for the reasons of an event and they like getting motivated for the details of it. Their interest and sensitivity towards environment necessitates a powerful observation, a healthy judgement and a serious thinking skill at gifted people. They can establish rapid connections among the events that seem irrelevant and have the skill of generalization with the clues they attained through the proces. They produce realistic solutions to the environmental problems in the real world and severely struggle for overcoming the problems.

Gifted students' knowledge, conscious and attitude levels towards environment should be determined and they should be developed consequently. It can be said that the more students have positive attitudes towards environment the less environmental problems occur. Because of this educational applications to change gifted students' attitudes towards environment should be included in the educational process. With this research primary education gifted students' attitudes towards environment were determined and examined in terms of influential variables.

The variables affecting gifted students' attitudes towards environment should be investigated in details. The educational planning should be organized and applied regarding these variables. Gifted students' curriculum should be evaluated in terms of the aims of environmental education and some corrections and arrangements should be conducted to provide students' environment attitudes in a positive way. As in other studies this study indicated that female students have more environmental attitudes than male students. The reasons of male students' having less environment attitudes can be investigated. Also applications that may change the male students' environmental attitudes into more positive should be considered. This study is restricted with the gifted students in Ankara Province. Studies can be conducted to examine gifted students'

attitudes towards environment in other cities. In order to form a respectful society to environmental values, firstly the individuals that form the society should be provided with accurate knowledge and shape the educational process according to the given frames. Environmental education should be arranged according to providing individuals with knowledge, conscious, skills and values and have them undertake responsibility in protecting the environment. Environment education is not only a notion in educational process but also a concept of a whole life of an individual. Because of this environmental education should be considered and evaluated along with lifelong learning model.

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