

Interests of 5th through 10th Grade Students Regarding Environmental Protection Issues

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Abstract

This study investigates the extent of interest among middle and high school students in environmental protection issues along with the sources of their interests and factors that impact their interests, namely people with whom they interact and courses that they take related to the environment, science and technology. In addition, it is confirmed that the greater the grade and the age of the students, the more their interest towards the protection of the environment diminishes. According to these results, from the 7th grade onward, male students show a consistent decrease and see these issues as not a necessity. The female students' interests in the issues decrease at a lesser rate than their male counterparts, but also consistently. The 9th grade is the period when both the male and female students lose most concern about the environment. In 10th grade, female students' concern increases; however, males students' remains at the same level and does not progress. In this study, these results are analyzed and examined. What are the sources of interest in the environment and the factors leading students to be more environmentally conscious? We attempt to answer these questions and determine what can be done in order to increase students' concern with these issues through creating concrete suggestions and offering ways in which they can be applied in public schools and transferred to classes.

Key Words: Environmental protection, environmental consciousness, environmental education

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Introduction

A frequently used term in our daily lives is "interest." Different meanings are associated with this term in different areas. Interest is defined as the tendency, importance, closeness, or enjoyment associated with an event, object, or way of thinking and the desire to engage with them in one way or another. It is also possible to see many different definitions in the literature. In every discipline, a definition of interest specific to that discipline has been developed. Interest is being thought of in two ways by scholars: "to feel interested" and "to be interested." While the former one is considered as a state, "to be interested" is considered as a general and special act of interest. General interest is a positive affinity towards certain objects, events, and ways of thinking. A person having a special interest should be actively busy with certain things and spending time and money for them. Hobbies, courses that people like to take, owning a pet, and growing a plant could be given as examples of specific interests (Todt, 1990; Krapp, 1998). For a person to be interested in a certain thing, it should be important for him/her, and it should arouse happiness in him/her.

According to the pedagogical interest theory, developed by Prenzel, Krapp, and Schiefele (1986), interest is explained as the relationship between a person and the object of his/her interest. By suggesting the individual-interested object theory, Krapp, Hidi, and Renninger (1992) consider interest as the lived experiences between a person and the object he/she is interested in. This situation motivates the person to learn in depth about the object he/she is interested in. Interests are also very important for an individual's planning of his/her future and his/her personal development.

The purpose of this study is not to consider interest in all of its aspects but rather to focus on the importance of interest in education, specifically in environment education.

The crucial element of this subject is that, whatever the specialty of the instructors, they should raise awareness of environment protection. If the students can connect with real objects by themselves and if this kind of study is supported, then they become curious and interested in the subject and motivated to take action.

Among other factors, it is very important to consider student interest when planning environment protection classes. If students are interested in any course, this stimulates a strong desire for learning (motivation). Hence, attracting students' interest should be a goal of effective education. In order to deliver an effective environment protection program, how students' interests are formed and changed over time should be explored.

In this study, the changes in the interest of students aged between 12 and 17 towards environment protection issues were examined. Another purpose of this study is to find out if there are any changes in student interest toward the protection of the environment among grade levels and the reasons for this change and to propose a hypothesis about how the concern of students about environment can be increased.

Method

Study Group

This study was conducted with 725 students from 5th to 10th grades in 15 schools in Ankara, the capital city of Turkey. The schools were chosen according to the socioeconomic status of the regions in which they were located. The 15 schools in question represent the accessible universe as can be seen in Table 1. To collect data, a questionnaire was given to 1180 students; however, those with inappropriate and incomplete responses were eliminated during data analysis. Prior to administering the questionnaire, the principal investigator of this study made explanatory comments about the questionnaire and encouraged students not to answer questions without reading the items (especially among the 5th and 6th grade students).

Table 1. *The Distribution of Students Based on Grade Levels (5-10) and their Percentages (n=725)*

Classes	Female Students (n)	Male Students (n)	Total	Percentages
5	60	63	123	17,1
6	54	48	102	14
7	63	61	124	17,1
8	68	62	130	17,9
9	64	58	122	17,1
10	61	63	124	17,1
Total	370	355	725	100

Research Instruments

A questionnaire was used as the data collection instrument, which was originally developed in Germany by Finke (1999). The questionnaire was developed in Turkey by the author of this study using similar methods as Finke. To ensure that the contents of the questionnaire were the same as the original, two people who were fluent in both Turkish and German translated the questionnaire from German to Turkish and from Turkish to German. A pilot study was conducted to examine the appropriateness of the questionnaire items for the Turkish subjects. The questionnaire was a five-point Likert scale (Likert, 1932). These scales were composed of phrases like; “I don’t want to learn at all,” “I don’t want to learn,” “I am neutral,” “I would like to learn,” and “I would like to learn very much” (see the items in Table 3). Values ranging from 1 to 5 were given to the phrases.

The questionnaire consisted of the following three parts:

1. Background information
2. Protecting the environment and nature
3. The stimulating factors that affect the students

Data Analyses

The study was inputted into the program SPSS, the factor analysis was conducted and the general distribution was evaluated, and the independent factors’ effects to the dependent factors were studied. The difference between male and female students’ significance level was examined by means of the analysis of variance (ANOVA). Cronbach α (alpha) value of the questionnaire was determined as $\alpha=.95$, [Environment protection issues (33 items)] ,which indicated a high level of reliability.

Results

The variation of interest toward environment protection issues depending on age and sex

The mediums of interest of the students toward the environment protection issues are quite high among both male and female students. While the 5th and 6th grade male and female students choose the items “I would like to learn,” from the 7th grade on, male students’ interests decrease, and they tend to choose “I am neutral.” The female students show a slight but consistent decrease toward the subject until the 9th grade. The 9th grade is the period when both the male and female students lose concern about the environment the most. In 10th grade, the female students’ concern increases again; however, males’ concern remains at the same level and does not show any progress.

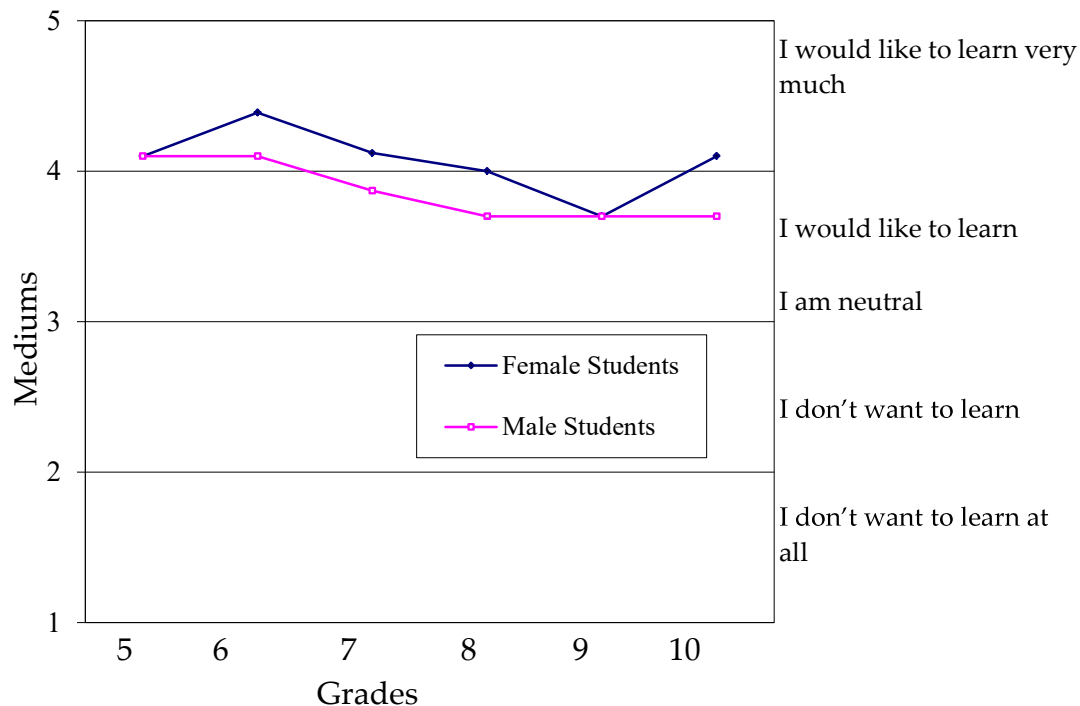


Figure 1. Male and female students' interest in environment protection issues in various grades

The mediums of interest among female students in environmental issues are higher in all grades than among males, except for in the 5th grade. If we consider other works of research (Arbinger et al., 1976; Löwe, 1972), a decreasing result regarding the subject on the environment is not expected. This could possibly be due to the economic crisis in recent years in our country or the inadequate motivating information and the scarcity of research about environment protection in state schools?

Table 2. The Variance Analysis (ANOVA) of the Level of the Students' Interest in the Environment

	Female students	Male students
Degrees of freedom(df)	370	355
F-number	11,751	10,397
P(significance level)	,000	,000

This result shows resemblance to that of Finke's (1998) work in Germany and Erten's (2008) research, titled "Interests of 5th through 10th Grade Students Toward Human Biology." In both works, the interests of students from 5th to 10th grade show a decrease, whereas in higher grades, they tend to increase. This decrease in interest with increasing age could be caused by the struggle to adopt a new social environment beginning in 5th grade, or the pre-puberty and puberty period.

Puberty is a transition period for social maturation and every aspect of character development. Teenagers have a desire for freedom through separation from their parents, but at the same time they are afraid of assuming the responsibilities of adults. There are many important duties and decisions they face. As they move from being dependent on their parents towards being independent, youngsters should develop a stationary concept of self. This process is defined as self-identity development (Erikson, 1968). As youngsters grow up, they discover that some behaviors and beliefs that they inherit from their families, friends, and ethnic groups are no longer suitable for them.

For many pupils, friends in the same age group make it possible for them to enter a new life with different values and roles and become independent, as friends provide a social and emotional support net. Young pupils feel a high degree of desire to develop a friend group who approve their choices, perspectives, and behaviors. Strict compliance with friend and group values results reaches its peak in the ninth grade (Perry, 1990).

As can be seen in Figure 1, the 9th grade is the period when students' interests decrease the most. A second reason for this decrease could be the official placement test (SBS) and the process of getting oriented to a new social environment, because the students who pass the SBS feel no longer distressed, and their new social environment in a new school and new friends cause them to lose their interest in nature and the environment.

Between 6th and 10th grade, the female students' interest level is higher than that of the males; Finke's (1998) and Erten's (2008) studies also support this result. This difference caused by sex is assumed to occur because the female students' sense of self is different from male students'. In addition, female students think that if they are interested in these issues, they will be more readily accepted in society than the males; this is why the female students are more interested than the male ones.

The results and comments on the stimulating factors for the environment protection issue

Table 3. *The Effectiveness of Stimulating Factors That Influence Formation of Interest toward the Protection of Nature and the Environment*

Male and female students (n=725)		What or who stimulated the interest you have today toward the environment protection and how :	Female (n=370)	Male (n=355)
Sorted based on Mediums			Sorted based on mediums	Sorted based on mediums
1.	3,67	<i>My responsibilities for the environment</i>	3,78	3,57
2.	3,64	<i>Destruction of nature and the environment deforming our world</i>	3,78	3,51
3.	3,60	<i>My love of animals and plants</i>	3,78	3,44
4.	3,64	<i>The discomfort caused by corruption of nature or the environment</i>	3,77	3,52
5.	3,60	<i>TV programs</i>	3,69	3,52
6.	3,56	<i>Worries about the future</i>	3,69	3,45
7.	3,45	<i>The related news on TV, the radio, and newspapers</i>	3,47	3,44
8.	3,36	<i>The books or magazines I read</i>	3,44	3,28
9.	3,26	<i>The discussions that I occasionally have with my family members</i>	3,42	3,12
10.	3,25	<i>The prohibitions about this issue</i>	3,40	3,12
11.	3,30	<i>Biology or science classes</i>	3,38	3,22
12.	3,34	<i>Biology or science teachers</i>	3,37	3,32
13.	3,30	<i>My experiences in nature</i>	3,37	3,24
14.	3,26	<i>The programs trying to protect the nature</i>	3,30	3,23
15.	3,23	<i>My family's research on the subject</i>	3,29	3,16
16.	3,12	<i>My friends' or acquaintance' researches</i>	3,27	2,98
17.	3,11	<i>The talks with friends or acquaintances</i>	3,18	3,05
18.	3,09	<i>My siblings who are quite sensitive on this issue</i>	3,10	3,09
19.	3,00	<i>A homework project that I completed</i>	3,09	2,92
20.	3,06	<i>A trip to an protected environment</i>	3,07	3,04
21.	3,07	<i>Groups aimed at saving nature and the environment</i>	3,06	3,07
22.	2,96	<i>My participation in those kinds of groups</i>	3,05	2,88
23.	2,99	<i>My hobbies that are harmful to environment</i>	3,02	2,97
24.	2,70	<i>My family's interest in husbandry or we own a farm</i>	2,59	2,80

The most effective factor that stimulates interest in protecting the environment is the male and female students' responsibility to the environment, as can be inferred from Table 3. The other most effective factor is the aesthetic beauty of the environment. Male and female students both admit that if nature is corrupted, then our world will be too. Since they don't want to see the world that way, they become more interested in the protection issue.

The third crucial factor is "taking care of animals and plants." The studies of Berck and Klee (1992) prove that taking care of animals and plants raises awareness and interest in protecting the environment. However, the leading factor in their studies is one's personal experience in nature,

whereas that factor is not among the most important ones in this study. The reason for this change could be that this research is based on the surveys delivered to teenagers who are away from country life and live in metropolises. However, at this point, we must ask why teenagers don't take great part in environment protection activities. This research shows us that not enough plants are grown and taken care of in state schools. In fact, growing plants is cheap and easy. If the students are given the opportunity to plant, this would certainly help them value all beings and increase their interest in nature. It is also necessary that students be encouraged to spend time in nature and take care of animals in their leisure time. This will create nature-animal lovers in the future. As the discomfort caused by the corrupted nature environment and worries about the future are some of the stimulating factors, worries about their health, the fear of catching a disease, and the need to protect themselves from them all raise awareness of the environment. According to Martens and Rost (1998), "considering environment problems as a threat" generates nature-friendly behaviors. It should be noted that the children and teenagers should not be left alone to overcome their fears (Petri, 1993).

Some of the stimulating factors, the 5th, TV programs; the 7th, news on the radio, TV, and newspapers; and the 8th, books and magazines that I read, should be given importance by parents and teachers, as these factors are quite effective in raising awareness of the environment. Eschenhagen et al. (1998) asserted that watching TV and reading are definitely among the stimulating factors. The press also plays an important role in raising curiosity of both human biology, nature, and the environment, as can be seen in this research (Finke, 1998; Erten, 2008). It is quite significant that the time spent watching TV is twice as much as that spent reading (it might be ten times more in our country) (Giehrl, 1987; Fritsche, 1997). Parents and teachers should encourage students to read more and support them. It is known that older students are affected by written media, while younger students are affected by television programs. It is not correct to suggest TV programs to students who watch TV 10-15 hours a week (Krisch et al., 1980; Krause & Pohl, 1985; Giehrl, 1987; Eimeren & Klinger, 1995). However, quality programs that have informational value and that do not encourage violence could be suggested. Films that are related to the class content could also be suggested (Killermann, 1996).

The factors of biology and science classes and biology and science teachers could only take 11th and 12th places as factors raising awareness of environment protection. This result is thought provoking. What is expected is that both teachers and biology and science classes take the lead as factors.

Other stimulating factors, groups aiming to save nature and the environment and my participation in those kinds of groups, could only take 21st and 22nd places, respectively. Although the environmental consciousness can be reinforced through the groups which carry on some nature-environment projects, the students can take part in those projects or even create their own projects. The works of these institutions can arouse curiosity among students. It is noted that these projects must be in the field, such as in trash dumps, natural reserves, composting places, and water treatment plants (Starosta, 1997).

The factors of my experiences in nature and trips to protected environments take place among some of the last ones. It can't be underestimated that going into the field can definitely inspire interest and increase it. A trip to a natural reserve will certainly strengthen the aesthetic perception of the students. Being in those clean natural places broadens their viewpoint as well as playing an important role in making them avoid some illnesses. If both issues are handled, evaluated, and supported, it is very likely that the students are going to exhibit nature-friendly behaviors (Erten, 2000, 2008).

In those studies, in other words, on field trips, the possible problems must be prevented for the sake of the students. For instance, in a field trip to the trash dump, the students must not be disgusted by the smell or the view. It must be explained to the students that we are all responsible for polluting the environment and that harming nature also harms us, so we have to prevent this destruction.

Discussions and Conclusion

1. Interest in protecting the environment possesses high positive results according to the outcomes; however, they should be enhanced in schools. The teachers have to make efforts in order to encourage and support the students.
2. The teachers should discuss the responsibility that we all have for the environment, along with the aesthetic aspect of nature, which by all means strengthens their emotional ties.
3. Inciting the students to take care of plants and animals in the schools leads students to behave in an environmentally friendly manner in the future. This could even be a part of the class.
4. The message could be portrayed that environmental problems can also have negative effects on our health and that protection from some illnesses is also possible through protecting the environment.
5. Movies about nature and the environment should be shown, and students should be referred to watch related documentaries.
6. The students should be urged to read both in school and at home.
7. The students must be given the opportunity to have moments and experiences in the field and in nature.
8. The students should be informed of non-governmental organizations which make efforts to heal the world and should be urged to take part in these organization's projects.
9. This and other research results (Arbinger et al., 1976; Löwe, 1987; Weissbach, 1986) suggest that the emotional changes in pre-puberty disinclines students to attend school; therefore, concern about the classes begins to disappear. In addition, Todt's study (1995) suggests that children between the ages 11 and 15 go through a period in which they feel stressed by life and become disinterested in school and family relations, which seems to be the effects of pre-puberty period. These facts should be known by all of the instructors so that the students are not damaged during this period.
10. Löwe (1987) also claims that finishing primary school and starting secondary school also affects students negatively. This is because, in secondary school, major courses begin, and students begin to meet new teachers. The teachers make use of different teaching techniques not used in primary school. It certainly takes time for the students to get used to all these changes. Moreover, in high school, the students are in a new social environment which is full of new friends and older students. All of these factors require them to devote greater efforts (Gößwein, 1982; Weisbach, 1986). This new social environment and the need for adaptation makes it hard for the students to focus, thus causing them to become disinterested in the courses (Eder, 1992). The teachers and the parents should be aware of this situation and support the students.
11. Going through the process of puberty mean finding sexual identities and turning to new areas (Schenk- Danzinger, 1988; Oerter&Dreher, 1995). Adjusting to a new identity brings a loss of certain fields of interest (Gotfredson, 1981; Todt, 1990). The stableness that is observed in the secondary school stems from students' needs in puberty. This is why families, teachers, and even managers should tolerate this situation, knowing that, if they support the students, they might easily get through this process.
12. Students want to be interested in what they are prone to do and they want to be busy with these things. While they are answering the questions in the survey, they also weigh the questions' content, and they are interested in those personal activities that the students desire to realize (Todt, 1978). In short, in this process of deciding, the analysis of cost-effectiveness is performed. That's why teachers

should underline nature-friendly behaviors for the protection of nature and the importance of nature for the sustainability of humanity and other living beings in their courses.

13. These findings present knowledge of the importance of increasing students' interests while preparing lesson plans and the necessity to use events and methods that increase interests.

14. In order to succeed in environmental education and therefore protect the environment, first of all, teachers should devote much more time to environmental education, thus increasing individuals' environmental consciousness and transferring information about environmental consciousness into every lesson, and they must have knowledge and sources related to these issues.

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