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The Effects of Region and Gender on Students' Attitudes towards Environment

Cinsiyet ve Kırsal - Kentsel Kesim Farklılıkların Öğrencilerinin Çevreye Yönelik Tutumlarına Etkisi

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Abstract

The purpose of this study is to investigate the effect of region (rural and urban) and gender on 6th Grade students' attitudes toward the environment. A total of 135 students (n=65 girls; n=70 boys) participated in the study. A 45-item Likert type questionnaire consisting of four dimensions was used to measure students' environmental attitude. These dimensions (awareness for environmental problems, general attitude about solutions, awareness of individual responsibility and awareness on the national environmental problems) constitute the dependent variables of the study. A two-way MANOVA was conducted for the specified purpose. Results showed that there was a significant effect of region on the collective dependent variables. Univariate ANOVAs indicated that students in the urban area had greater awareness for environmental problems, individual responsibility and national environmental problems. On the other hand, no statistically significant effect of gender was found.

Key words: Environmental attitude, gender, rural and urban areas.

Öz

Bu çalışmanın amacı, cinsiyet ve kırsal – kentsel kesim farklılıklarının 6. sınıf öğrencilerinin çevreye yönelik tutumlarını nasıl etkilediğini incelemektir. Çalışmada 65 kız, 70 erkek olmak üzere, 135 öğrenci yer almıştır. Öğrencilerin çevreye yönelik tutumlarının ölçülmesi amacı ile 45 soru ve dört boyuttan oluşan Likert türü bir ölçek kullanılmıştır. Söz konusu boyutlar, çevresel sorunlarla ilgili tutum, sorunların çözümü ile ilgili tutum, kişisel sorumluluklarla ilgili tutum ve ulusal çevre sorunları ile ilgili tutumdur. MANOVA sonuçları, bölgesel farklılıkların 4 boyut üzerinde anlamlı bir etkisi olduğunu göstermiştir. ANOVA sonucunda, kentsel alanlarda yaşayan öğrencilerin tutumlarının daha olumlu olduğu ortaya çıkmıştır. Bununla birlikte, cinsiyet farkının öğrencilerin çevresel tutumları üzerinde anlamlı bir etkisi gözlenmemiştir.

Anahtar Sözcükler: Çevresel tutum, cinsiyet, kırsal ve kentsel alanlar.

Introduction

"Though everything may seem everlasting, caring should start from the youth in me." This is a statement of a child called Angela Shima from the Philippines, which actually coincides with the world environment policy today that considers education as part of the effective implementation of environmental policies. Three goals of environmental education (EE) is defined in 1977 in Tbilisi (UNESCO, 1977) as; to enable pupils to deal with the natural, social and developed environment, to promote the ability to solve problems in complex systems, and to contribute to enable pupils to participate in political life. The concept of "the environment", on the other hand, has changed over time; early views focused on changing ecosystems and the impact of various forms of pollution, however the social, economic and cultural dimensions of the environment have been increasingly recognized and the inclusion of sustainable development is presently envisaged (Palmer, 1998).

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Two of the basic factors comprising the social dimension of the environment, as far as the EE is concerned are, parents' level of education and their employment, because, social and economical problems are strictly connected with environmental awareness, thus environmental damage. Supporting equal rights and investing in women's education, for example, would help stop population growth; women with higher education and incomes tend to have fewer children; the children they do have tend to be healthier and better educated. Creating all these trends can reduce poverty and help protect the environment.

In Turkey, environmental education is still in its infancy and systematic efforts are not being made to incorporate environmental concepts in one way or another into the school curriculum. This is evident in the lack of studies undertaken on specific issues related to environmental education, such as assessing general awareness for environmental problems, awareness of individual responsibility, general attitude about solutions and awareness on the national environmental problems. However, there are attempts to integrate and develop environmental education topics within school curricula. For example, Arkış (1992) conducted a study to investigate the effect of water conservation unit integrated into 6^{th} grade junior high school science curriculum on the water related and environmental attitudes of students. Results showed that water conservation unit positively affected water related attitudes of the students. However, no gender difference was found with respect to students' attitudes and there was no interaction between the treatment and gender. Similarly, results of the study carried out by Doğan (1993) with the purpose of exploring the effect of soil conservation unit revealed that, soil conservation unit enhances students' soil related attitudes. Parallel to the findings of the study conducted by Arkış (1992) no significant difference was found between boys and girls with respect to soil related attitude. Based on these findings, both of the authors suggested that different environmental education topics at every grade level can be integrated into the curriculum using the units similar to ones that they implemented in their studies as a starting point.

Considering the findings in the literature, the current study is designed to assess the 6^{th} grade students' environmental attitudes with respect to gender and region.

Method

Sample

Hundred and thirty-five students (n=65 girls; n=70 boys) from 6^{th} grade classrooms of the rural area elementary schools (N=67) and urban area elementary schools (N=71) in Ankara were participated in the study. The mean age of the students in both rural and urban area schools was 12.

The random selection of the schools had been made according to the socio-economic background in which they were located. The aim was to have an equal number of rural and urban area elementary school students, so that suitable comparisons could be made.

Instruments

A 45-item Questionnaire of Environmental Concern, measuring students' awareness both on global and national environmental problems was developed based on the one used by Worsley and Skrzypiec (1998), which was originally developed from Herrera's (1992) Questionnaire of Environmental Beliefs. During preparation, items concerning general environmental issues, such as ozone layer, over population, etc. were kept and other statements concerning sustainable use of the natural resources, changing life styles and national environmental issues were added. Our aim was to provide a more complete description of the students' perceptions of; awareness for environmental problems, general attitude about solutions, awareness of individual responsibility and awareness on the national environmental problems. The internal consistency of the scale was determined to be .87 using Cronbach alpha. The questionnaire comprised four dimensions;

Dimension 1: General awareness for environmental problems – **AEP**

Target: To determine students' awareness of global environmental problems.

To find out students' awareness on the effect of these problems on their future.

Dimension 2: General attitude about solutions – **GAS**

Target: To find out students' attitude on the solutions.

Dimension 3: Awareness for individual responsibility and attitude through changing life styles - **AIR.**

Target: To determine students' awareness on their responsibilities for the solutions and their attitude toward the relation between life styles and environmental problems.

Dimension 4: Awareness on the national environmental problems - **ANEP**

Target: To determine students' awareness on national environmental problems.

Scoring of the questionnaire

For statements representing positive attitudes toward the environment, 5 points were assigned to "strongly agree", 4 to "agree", 3 to "undecided", 2 to "disagree", 1 to "strongly disagree" and zero to "I don't know". As for statements representing negative attitudes, the score was reversed.

Procedure

After the permission for administration of the questionnaire was obtained, authors visited schools and informed the participants on the purpose of the questionnaire and procedure for completing it. Average time for completion of the questionnaire was 20-25 minutes.

Data Analysis

Statistical analysis included tabulation of frequency distribution of students' responses to the questionnaire and examining the two-way MANOVA. All analyses were conducted at the $p<.05$ level of significance.

Results

Social Indicators for Rural and Urban Areas

Fathers' educational level (FEL) and mothers' educational level (MEL), father work status (FWS) and mother work status (MWS) are the parameters taken as indicators of the social status of the students living in rural and urban areas. The reason for doing so, can be explained both with the related literature (Makki, Abd-El-Khalick and Boujaoude, 2003; Tikka, Kuitunen and Tynys, 2000; Kuhlemeier, Bergh and Lagerweij, 1999; Campbel, Walıczek and Zajıcek, 1999; Gamoran and Nystrand, 1994) and the related data on the differences between these parameters with respect to the rural and urban areas (SIS, 2001).

Related data on the social status of the students living in the rural and urban areas are given in Figure 1. As seen from the figure, the levels of education of parents reveal a distinguished character for the rural and urban areas that; for most of the rural parents extents only to the high school degree, whereas it is mostly university and higher for the urban parents. MEL in rural areas is mainly primary school, whereas it is mainly university for the urban areas. Although only 9% of the fathers living in rural areas have a university degree; this is 41% for the urban areas. Similar discrepancy is applicable for the education levels of mothers living in rural and urban areas; only 1.7% of the mothers living in rural areas have university degrees and it is about 38% for those living in urban areas.

Parents' employment status data (Figure 2), on the other hand, reveals that mothers living in rural areas are mostly unemployed, whereas those living in urban areas mainly work for the government. Although fathers'

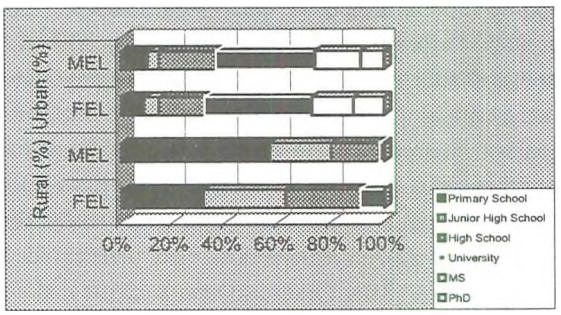

Figure 1. Social Indicators for Rural and Urban Areas: Parents Level of Education

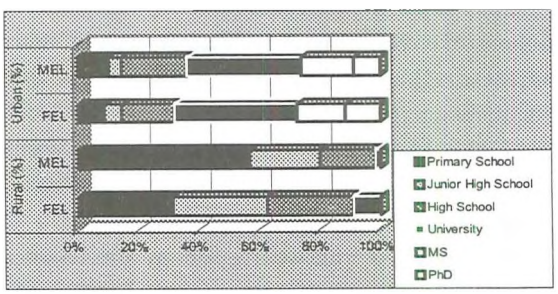

Figure 2. Social Indicators for Rural and Urban Areas: Parents' Work Status

work status seems to be similar for rural and urban for private sector and employer cases, unemployment rate for the rural population is more than twice that of the urban.

Students' Environmental Attitude

Table 1 shows the frequency distribution of students' responses to the questionnaire with respect to region. At a first glance at Table 1, it can easily be observed that, 6th grade students from rural and urban areas in Ankara agree that; environmental pollution is not a temporary problem; society should encourage nature conservation; in dealing with any problem, we need to consider how its effect on the environment; and individual responsibilities are very important in protecting the environment. The answers of both rural and urban area students for item 24 are the most encouraging ones; 59.2% of the urban and 52.2% of the rural area students "strongly agree" that individual responsibilities are very important in protecting the environment. A similar situation is valid for item 3. The students both from rural and urban areas disagree that environmental pollution is a temporary problem. The response to item 38, on the other hand, is another point that all the students are agreed on. More than 70% of the urban and 52% of the rural area students agree that in dealing with any kind of problem we should consider its impact on environment. However, there is a disagreement among students over the superiority of industrialization or environmental destruction (item 20). Fifty three percent of the urban area students make their choice for environment, 34.3% of the rural area students make the same choice, while 20.9% of them answered the item as "undecided" and 23.9 % as "I do not know".

Another dilemma exists for item 42, which addresses solutions of environmental problems and environmental awareness. Although they do not seem to be disagreeing with this statement, the high percentages of "undecided" and "I do not know" answers show that the majority of them, especially urban area students, have no idea of the concept.

"I do not know" answers given by the urban area students do not exceed 10% in average. But the case for the rural area students is different: the percentages for "I do not know" answers are generally above 10%.

Effects of Region and Gender on Students' Attitude Toward Environment

A two-way multivariate analysis of variance (MANOVA) was conducted to determine the effect of region (rural and urban) and gender on the four dimensions of the environmental attitude scale. The results showed that there were no statistically significant interaction between two factors: Wilks' L= 0.946, $F(4,128)=2.37$, p=0.126. Moreover, it was found that there were no statistically significant differences for the gender factor with respect to collective dependent variables Wilks' L= 0.931, $F(4,128)=3.93$, p= 0.056. However, when the mean score on each dimension was examined, girls appeared to be more aware of environmental problems, national environmental problems, individual responsibilities, and more optimistic about the solutions of the problems than boys..

A significant difference was found between students of rural and urban areas on the dependent measures (Wilks' L= 0.891, $F(4.128)=3.93$, p= 0.005, h^2 =0.11). The multivariate h^2 =0.11 indicated 11% of multivariate variance of dependent variables in association with the independent variable. For the region factor, the univariate ANOVAs for general awareness for environmental problems, awareness on the national environmental problems, awareness of individual responsibility, and awareness on the national environmental problems were found to be significant; $F(1.131) = 14.25$, $p<0.001$, $F(1.131) = 8.91$, p=0,003,and $F(1.131) = 4.31$, $p<0.04$ respectively, while the univariate ANOVA for general attitude about solutions was not significant $F(1.131)=3.74$, p=0.055. These results indicated that there were significant mean differences between students attending schools in a rural area and students attending schools in an urban area with respect to two dimensions of the scale namely, awareness for environmental problems, awareness on national environmental problems. When the mean scores on each dimension were examined (Figure 3), it was found that students in the urban area had greater awareness of environmental problems and national environmental problems. However, no statistically significant mean difference was found between students in rural and urban areas with respect to general attitude on solutions. Although, the mean difference was not

Table
Students' Responses for some selected items

Item #	Statement	Rural Area (%)						Urban Area (%)					
		Strongly disagree	Disagree	Undecided	Agree	Strongly Agree	I dont know	Strongly disagree	Disagree	Undecided	Agree	Strongly Agree	I dont know
Factor 1: AEP													
3	Environmental pollution is a temporary problem	31.8	25.8	16.7	10.6	10.6	4.5	44.3	25.7	7.1	12.9	10.0	0
6	Mankind is very adaptive so there is no need to be concerned about his survival in a polluted environment.	47.8	23.9	11.9	4.5	3.0	9.0	50.7	23.9	8.5	4.2	8.5	2.8
28	Humanity is abusing the environment	12.1	18.2	19.7	19.7	16.7	13.6	11.3	2.8	15.5	32.4	28.2	9.9
37	The natural sources of energy, such as sun. wind and water, can never be exhausted, so energy will never be scarce on earth.	22.7	16.7	30.3	12.1	6.1	12.1	33.8	18.3	16.9	14.1	9.9	7
39	Over the next ten years environmental problems will diminish.	6.0	10.4	20.9	17.9	32.8	11.9	0.3	7.5	14.9	28.4	43.3	3.0
Factor 2: GAS													
2	As human beings, we must live in harmony with nature if we want to survive.	9.0	6.0	9.0	32.8	35.8	7.5	7.1	11.4	4.3	21.4	54.3	1.4
7	The ultimate solution for environmental problems depends on drastic changes in our life-styles.	3.1	10.8	21.5	30.8	24.6	9.2	7.1	25.7	18.6	25.7	15.7	7.1
8	Protection of the environment is more important than economic growth.	10.4	11.9	25.4	25.4	16.4	10.4	8.7	11.6	26.1	14.5	33.3	5.8
11	The benefits of technology are greater than its harmful effects.	13.4	11.9	29.9	13.4	23.9	7.5	11.3	16.9	25.4	18.3	15.5	12.7
17	Science and technology are advancing so rapidly that it will always be in control of any environmental problems that arise.	7.7	15.4	23.1	27.7	10.8	15.4	15.7	15.7	22.9	22.9	10.0	12.9
38	In dealing with any kind of problem we need to first consider how it will effect the environment.	1.6	9.5	19	25.4	27	17.5	7.2	4.3	14.5	30.4	40.6	1.4
40	Society should encourage the conservation of nature.	6	10.4	20.9	17.9	32.8	11.9	3	7.5	14.9	28.4	43.3	3
Factor 3: AIR													
10	Environmental protection is a governmental responsibility.	26.9	28.4	11.9	13.4	16.4	3.0	42.9	25.7	10.0	8.6	10.0	2.9
15	Fast food consumption is harmful for both ours and nature's health.	19.7	9.1	22.7	13.6	21.2	13.6	15.9	14.5	20.3	20.3	21.7	7.2
24	Individual responsibilities are very important in protecting the environmental pollution.	10.4	6	10.4	19.4	52.2	1.5	12.7	4.2	4.2	15.5	59.2	4.2
30	We can accept to change our life styles to protect natural resources.	6.2	10.8	26.2	29.2	13.8	13.8	8.6	11.4	10.0	31.4	30.0	8.6
31	Spending long times in shopping centers is a type of life style that has negative effects on both consumption patterns and the exploitation of the natural resources.	13.8	20.0	18.5	18.5	12.3	16.9	16.9	12.7	19.7	21.1	16.9	12.7
Factor 4: ANEP													
20	Turkey needs to be industrialized, therefore environmental destruction due to industrialization can be discarded.	14.9	19.4	20.9	14.9	6	23.9	38.6	14.3	17.1	17.1	7.1	5.7
23	There are many plant animal species in our country that are at the edge of extinction.	10.6	7.6	12.1	24.2	34.8	10.6	11,6	8,7	1.4	33.3	44.9	0
42	The solution of the environmental problems in Turkey is closely related with raising environmental awareness.	4.7	6.3	29.7	28.1	15.6	14.9	9.9	7	7	9.9	28.2	38

statistically significant, the mean score was greater for students in the urban area showing that students in urban areas were more optimistic about the solutions of the problems.

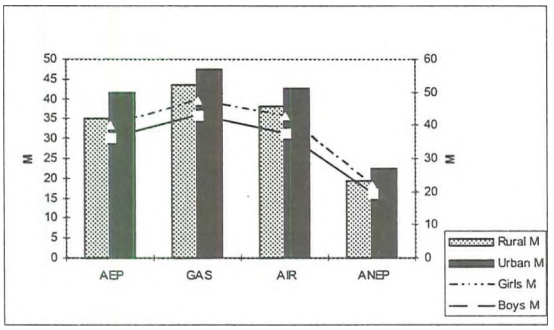

Figure 3. Effects of region and gender on students' attitude toward environment.

Discussion and Conclusion

Although students strongly agree about the importance of individual responsibilities in protecting against environmental pollution, they do not seem to be confident about them. Most of the students both from rural and urban schools seem undecided or do not know anything about the relation between life styles and environmental protection (items 3, 24, 38, 40) . While looking at items related to national environmental problems, on the other hand, although most of the students strongly agree that there are a lot of plants and animals at the stage of extinction, those living in urban areas strongly agree that environment should not be discarded for the sake of industrialization. However, those living in the rural areas mostly have no idea or undecided on this item. Although urban area students are more likely to be the ones more aware of the end products of industrialization, as far as life styles and consumption patterns are concerned, they are the ones rejecting industrialization over environmental concerns. This can be evaluated in two ways; either they are not in a position to assess the relationship or they are really aware and sensitive to environmental issues. The percentage of the positive answers of the urban area students ("agree"; 14.5% and "strongly agree"; 33.3%) for item 8 may be explanatory for the above assessment. The choice of environmental protection over economic growth shows that they are aware of the environmental problems and they are also aware of what this implies.

As Tikka et al. (2000) state, as a result of their study with a total of 464 students in Finland, the size and location of one's hometown might shape attitudes towards the environment. Thus, people living in crowded, urbanized environments are most likely to become aware of existing problems and, consequently, adopt favorable attitudes toward nature and protection of the environment.

Further work, in the light of these evaluations, should therefore, focus on environmental education curriculum studies. Although there are several studies on this issue (Barrett et al., 2002; Bonnet and Williams, 1998; Kuhlemeier et al., 1999; Grifford et al., 1983; Worsly and Skrzypiec 1998; Eagles and Demare 1999), because attitudes differ according to social, economic, cultural and environmental circumstances, studies on the cases specific to countries are strongly recommended. However, since a higher mean score indicates a more positive attitude, students in urban areas seem to be more optimistic.

When environmental attitudes were examined with respect to gender, the current study showed that there is no statistically significant difference between boy and girls. This finding was comparable with the findings of the studies conducted in Turkey (Arkış, 1992; Doğan, 1993). However, in the current study, when the mean score on each dimension was examined, it appeared to be in favor of girls. Regarding this difference, previous studies have also shown that under certain circumstances, females express greater concern than do males (Gifford et al., 1983; Worsly and Skrzypiec 1998; Eagles and Demare 1999; Tikka et al., 2000; Weaver, 2002). In their studies, Bord and O'Connor (1997) claimed that gender differences in environmental surveys is due to the differences in perceived vulnerability to risk from the environment, not necessarily differences in ecological fragility. They concluded that for females once risk to health and personal well being become linked to environmental issues, their levels of concern tend to surpass those of males. In her five-country comparison on the determinants of environmental attitudes, Weaver (2002) found similarly that, gender

was positively related to Human Actions Have Environmental Consequences in West Germany, and to Environmental Problems Have Human Consequences in the United States, with women more likely than men to support respective concerns.

It can be concluded as a result of all that, outside influences such as socioeconomic status, culture and life experiences probably influence environmental attitudes. As stated by Campbell et al. (1999), on the other hand, environmental knowledge and environmental attitudes are correlated. Thus, increased knowledge may help improve environmental attitudes. Granted, it is encouraging for educators to learn that attitude can be influenced, at least in part, by what is taught in the classroom.

Therefore, in line with the above mentioned facts and with the worldwide developments in the need for education for the environment and efforts for improving environmental attitudes, and knowing that increased knowledge will help to improve attitudes, we need to set up an environmental education strategy in Turkey and find the means to apply it.

In the mean time, although life experience, socioeconomic status and culture are considered to be general and regional outside influences on the environmental education strategy, future work should focus on the indicators of environmental problems, such as poverty, unemployment, migration and urbanization as the most important issues to be considered as the determining items for establishing a strategy for environmental education.

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