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Gaye Tuncer , Hamide Ertepinar , Ceren Tekkaya & Semra Sungur
[a] Middle East Technical University , Turkey
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Environmental attitudes of young people in Turkey: effects of school type and gender

Gaye Tuncer*, Hamide Ertepinar, Ceren Tekkaya and Semra Sungur
Middle East Technical University, Turkey

The purpose of this study is to investigate the effect of school type (private and public) and gender on sixth, seventh, eighth and tenth grade students' attitudes toward the environment. A total of 1497 students (n = 765 girls; n = 715 boys; and n = 17 gender not provided) attending public (n = 603) and private schools (n = 892) located in Ankara participated in the study. A 45-item Likert-type questionnaire consisting of four dimensions, namely, awareness of environmental problems, national environmental problems, solutions to the problems and awareness of individual responsibility, was used to measure students' environmental attitudes. A two-way multivariate analysis of variance (MANOVA) was conducted to determine the effect of school type and gender on four dimensions of the environmental attitude questionnaire. Results showed that school type and gender had a significant effect on the collective dependent variables. Univariate ANOVAs indicated that mean scores on each dimension of the questionnaire were significantly different for students in public and private schools. Moreover, there was statistically significant mean difference between boys and girls with respect to scores on each dimension of the questionnaire. It is concluded as a result of the study that, although there are differences between categories of individuals, there is a widespread support for conservation of the environment among young people living in Ankara/Turkey.

Introduction

Environmental education (EE) as a formal education movement has its origins in the concerns about environmental degradation and decreasing quality of life expressed by scientists in the 1960s. In the 1970s, however, the goals and objectives for environmental education changed to emphasize more explicitly values and attitudes clarification, decision-making skills and an action component. The evolution of environmental education in the 1980s, in certain parts of the world, developed almost

*Middle East Technical University, Faculty of Education, Department of Elementary Education, 06531-Ankara, Turkey. Email: gtuncer@metu.edu.tr

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exclusively around a few of the least political and difficult or controversial issues 'about', 'in' and 'for' the, so-called, 'green environment'. This fact combined with renewed efforts to reconcile the economy with the environment after the 1992 Earth Summit (Agenda 21), which led to an action programme covering many aspects of environmental conservation and sustainable development. As a result, new points were introduced to reorient education towards sustainability and a particular emphasis on public awareness and the role of training trainers. In 1997 Education for Environment and Sustainability was proposed to carry a common and single message of hope for the future, in a conference on 'Education on the Environment and Society and Public Awareness for Sustainability'.

However, in spite of the steps taken by the EE researchers as to the most effective EE strategies, continual changes in the concept of 'environment' over time have meant that environmental education is still its infancy. The situation in Turkey, on the other hand, is at the stage of 'just beginning'.

One-third of the population of Turkey is comprised of young people and the number of the students in the eight years of obligatory primary education comprises one-sixth of the total population. Therefore, setting up and applying an environmental education programme aimed specifically at primary schools is a challenge of considerable importance. There have been several attempts to include environmental subjects in the current school curriculum, but they have not gone beyond the sixth, seventh and eighth grades. Although the curriculum itself does not vary, there are differences in the way environmental education and awareness are implemented in the public and the private school systems in Turkey. Owing to the greater resources of the private sector in financial, physical and functional terms, EE in private schools is much more widespread, which is evidenced by a number of projects, such as 'Green Flag' or 'Globe'. Attempts by several non-governmental organizations, on the other hand, have only reached a limited number of students. One of the main problems, other than having no target and strategy on EE, however, is the lack of educators in the field. Thus, this study has been designed as a starting point for setting up an EE strategy in Turkey. We believe that an EE strategy development needs to be based on children's understanding of the environment, rather than on assumptions of what children know and believe (Loughland *et al.*, 2003). Therefore, our attempt in this study includes investigating the environmental attitudes of students attending both public and private schools in Ankara, the capital of Turkey.

We have taken school type and gender as the factors affecting the students' environmental attitudes in these studies for two reasons. Dissimilar implementation, as stated above, in different types of schools in Turkey made us take the school type as one of the concerns. Findings about different environmental attitudes with respect to gender in the related literature (Grifford *et al.*, 1983; Bord & O'Connor, 1997; Worsley & Skrzypiec, 1998; Eagles & Demare, 1999; Tikka *et al.*, 2000) is another concern to be tackled. A further concern is that the rate of literacy changes with gender in Turkey. The literacy is 72% for women and 89% for men according to the State Statistics Institution (1997). Moreover, most girls, especially in the east part of Turkey, do not attend school for traditional and economical reasons. Therefore,

taking this specific situation together with the more general one presented in Agenda 21 on the importance of women and youth for a sustainable future, it is worth considering gender differences in environmental attitudes. The conclusion from such a comparison promises to shape future studies on the development of a national strategy especially for the rural areas of the country.

Purpose

This study was conducted to assess Turkish students' attitudes towards the environment with respect to school type and gender. The study focuses on the following questions:

1. Is there any difference between the mean scores of students attending public and private schools on the four dimensions of the environment attitude questionnaire: general awareness of environmental problems, awareness of individual responsibility, general attitude about solutions and awareness of national environmental problems?
2. Is there any difference between the mean scores of boys and girls on the four dimensions of the environment attitude questionnaire?
3. What are Turkish students' attitudes towards the environment?
4. What do the results emphasize, as far as the national EE strategy is concerned?

Method

Participants

The data for the current study were obtained from 1497 students (n = 765 girls; n = 715 boys; and n = 17 gender not provided) attending public (n = 603) and private schools (n = 892) located in Ankara. These schools were in different regions of Ankara reflecting different socio-economic status. Of the 1497 students, 509 were sixth grade, 447 were seventh grade, 277 were eighth grade and 262 were tenth grade. The mean age of the students was 13.53 years.

Information regarding the students' fathers' educational level (FEL), mothers' educational level (MEL), fathers' work status (FWS) and mothers' work status (MWS) as indicators of socio-economic status is presented in Table 1. As is displayed in the table, the profile of the parents' social status is different for public and private schools. Although the majority of fathers (62%) of the public school students graduated from high school and lower, for the private schools this figure is below 10%; the majority of private school parents (95%) have a degree or higher degrees. A similar situation is found with the mothers; the level of education of private school students' mothers is higher than those for the public school students'.

Parents' employment status reveals different characteristics. Although there is not a big difference between the percentage of employed fathers of students from public and private schools, the discrepancy is very large in favour of private school students in the case of employed mothers. Therefore, in terms of education and employment

Table 1. Social status of parentsin public and private schools

	Public school (%)		Private school (%)	
Educational level	FEL	MEL	FEL	MEL
Primary school	17.6	30.2	0.3	0.3
Junior high school	16.5	17.5	1.0	1.1
High school	28.4	29.1	8.6	16.6
University	30.4	18.7	51.7	53.3
MS	5.2	3.2	20.5	16.3
Ph.D.	1.8	1.2	17.8	12.2
Employment	FWS	MWS	FWS	MWS
Unemployed	8.4	70	4.1	34
Employed	91.6	30	95.9	66

status, the social and economic profile of the parents can be defined as follows: private school students have 'university (to degree level or above) educated—and—mostly employed fathers and mothers' and public school students have 'mostly unemployed mothers and employed fathers educated to primary and high school level'.

Instrument

A 45-item Environmental Attitude Questionnaire (EAQ) was used to measure the students' environmental attitudes. The choices for each item are strongly agree, agree, undecided, disagree, strongly disagree and I don't know. The questionnaire was 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, overpopulation, etc. were kept and other statements concerning sustainable use of the natural resources, changing lifestyles and national environmental issues were added. Our aim was to provide a more complete description of the students' perceptions and awareness of environmental problems, general attitudes towards solutions, awareness of individual responsibility and awareness of national environmental problems.

The validity of the translated and adapted version of the questionnaire was established through review by three experts in the field of science education. All were asked if the items in each dimension were relevant to the goal of the questionnaire. Revisions were made based on their comments and suggestions. The revised Turkish version of the questionnaire was administered to 150 students. The internal consistency of the scale was found to be .87 using Cronbach alpha. The questionnaire comprises four dimensions; awareness of environmental problems (12 items, α = .58), general attitudes towards solutions (15 items, α = .65), awareness of individual responsibility (13 items, α = .77), and awareness of national environmental problems (6 items, α = .55). Dimensions and related targets are provided below:

Dimension 1:	General awareness of environmental problems—AEP
Target:	To determine the students' awareness of environmental problems. To determine students' opinion of the effect of the environmental problems on their future.
Dimension 2:	General attitudes towards solutions—GAS
Target:	To determine students' opinions on the solutions.
Dimension 3:	Awareness of individual responsibility and attitude through changing lifestyles—AIR
Target:	To determine students' awareness of their responsibilities, for the solutions and their awareness of the relation between lifestyles and environmental problems.
Dimension 4:	Awareness of national environmental problems—ANEP
Target:	To determine students' awareness of national environmental problems.

Scoring 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 a negative attitude, the score was reversed. For the presentation of the data the 'strongly agree' and 'agree' responses were combined to give the proportions of students who affirmed the data.

Procedure

The authors visited the schools after getting permission from the administration. Then, in each class, students were told about the purpose of the questionnaire, and the procedure for completing it. After this short explanation, students were asked to complete the survey of questions on their own. They were instructed to think about each question and answer it as it applied to them. It took about 25 minutes for the students to complete the questionnaire.

Data analysis

Statistical analysis included frequency distributions and two-way multivariate analysis of variance (MANOVA). The independent variables were the school types and gender while the four dimensions of the questionnaire (awareness of environmental problems, national environmental problems, solutions to the problems, awareness of individual responsibility) constituted the dependent variables of the study. All analyses were conducted at the 0.01 level of significance.

Results

Effects of school type and gender on students' environmental attitudes

Descriptive statistics for school type and gender with respect to the four dimensions of the environmental attitude questionnaire are summarized in Table 2. This table shows that students attending the private schools had higher mean scores on each

Table 2. Means and standard deviations of the four dimensions of the questionnaire with respect to school type and gender

	Public schools		Private schools		Boys		Girls	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
AEP	25.58	8.30	29.41	9.13	27.05	8.84	28.63	9.09
GAS	29.70	9.66	34.08	10.98	31.66	10.43	32.93	10.43
AIR	26.03	8.92	29.68	9.56	27.45	9.43	28.91	9.47
ANEP	13.97	5.18	16.26	5.21	14.45	5.33	16.16	5.17

dimension than students attending the public schools. Similarly, girls had higher mean scores than boys on each dependent variable.

A two-way multivariate analysis of variance (MANOVA) was conducted to determine the effect of the school type (public and private) and gender on four dimensions of the environmental attitude questionnaire. A significant difference was found between public and private on the dependent measures, Wilks' $\Lambda = 0.938$, $F(4,1472) = 24.49$, $p < 0.001$. The multivariate η^2 value of 0.06 indicated 6% of multivariate variance of the dependent variables was associated with the school types.

Moreover, it was found that there was a significant effect of gender on the dependent measures, Wilks' $\Lambda = 0.971$, $F(4,1472) = 10.95$, $p < 0.001$. The multivariate η^2 value of 0.03 indicated 3% of multivariate variance of the dependent variables was associated with gender. No statistically significant interaction was found between school type and gender, Wilks' $\Lambda = 0.999$, $F(4,1472) = 0.45$, $p = 0.775$, in other words, the school type effect does not depend on gender (and vice versa) with respect to collective dependent variables.

The follow-up analyses for pair-wise comparisons showed that the mean scores on each dimension of the questionnaire were significantly different with respect to school type and gender (Table 3)

The mean scores presented in Table 2 indicated that students attending private schools were more aware of environmental problems, individual responsibility and national environmental problems, and had more positive attitudes toward solving the problems. Furthermore, girls appeared to be more aware of environmental problems and individual responsibilities and to have more positive attitudes. At this point, it is worth mentioning that the deviations among the private schools (5.21 to 10.98 points) were larger than the public schools, ranging from 5.18 to 9.66. These deviations suggest that students' attitudes towards the environment are relatively consistent in public schools. Concerning gender differences, differences between boys and girls were minimal.

Students' responses to the environmental attitude questionnaire

Students' responses to the questionnaire with respect to the four dimensions are presented below.

Table 3. Follow-uppair-wise comparisons

	Dependent Variable	*df*	*F*	Significance (*p*)
School type	AEP	1	34.32	0.000*
	GAS	1	21.90	0.000*
	AIR	1	27.81	0.000*
	ANEP	1	21.62	0.000*
Gender	AEP	1	43.79	0.000*
	GAS	1	40.39	0.006*
	AIR	1	32.10	0.001*
	ANEP	1	50.17	0.000*
Gender*school type	AEP	1	5.43	0.978
	GAS	1	12.93	0.547
	AIR	1	9.56	0.679
	ANEP	1	10.37	0.565
Error	AEP	1475		
	GAS	1475		
	AIR	1475		
	ANEP	1475		

*Analysis was performed at 0.01 significance level.

General awareness of environmental problems—AEP

To determine whether there was a significant school type effect on general awareness of environmental problems, a univariate ANOVA was conducted. Results revealed a significant mean difference between private and public school students with respect to AEP, $F(1,1475) = 34.32$, $p < 0.001$. Since the sample size was large, eta square value was calculated as a measure of magnitude of difference. The η^2 value of 0.046 indicated that 4.6% of the variance of the AEP was associated with the school types. This finding suggests a small effect size.

Frequency distributions indicate that respondents' level of awareness of environmental problems is quite high. For example, about 70% believe that environmental pollution is at dangerous levels all over the world and slightly more than 60% believe that environmental pollution is not a temporary problem. While 67.3% of public school students claimed environmental pollution had negative effects on human health, 75% of the private school students shared this view. Few students thought that things would get better over the next 10 years (19.8% of the public and 14.3% of the private school students).

General attitudes towards solutions—GAS

A univariate ANOVA was conducted to determine whether there was a significant school type effect on general attitudes towards solutions. Results showed a significant mean difference between private and public school students with respect to GAS, $F(1,1475) = 21.90$, $p < 0.001$. The η^2 value of 0.042 indicated 4.2% of variance of the GAS was associated with the school types.

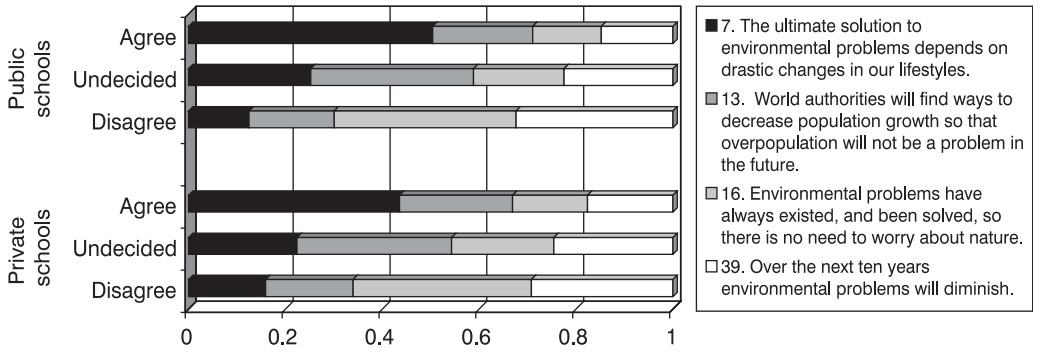

Figure 1. Students' responses for GAS (items 7, 13, 16 & 39)

An examination of the frequency distributions revealed that the students agreed with several of the general statements dealing with social encouragement of conservation activities: effects of population growth on environmental degradation and the necessity to live in harmony with nature. For example, approximately 48.8% of the students attending both public and private schools believed that the ultimate solution to environmental problems depends on drastic changes in our lifestyles (item 7). The idea that highlights faith in world authorities to find solutions to the overpopulation problem (item 13) was shared by 30% of the students (Figure 1). Percentages for 'undecided' answers for this item for public and private school students were 24.5 and 25.7 respectively. Similarly, although about 30% of all the students agreed on the idea that environmental problems will always be under the control of science and technology, 26.4% of public and 27.2% of private school students were undecided on this issue. While 63.5% of the private school students believed in the importance of society's encouragement for natural conservation activities, about 52.6% of the public school students shared this view.

It was also found that more than 20% of both public and private school students were undecided on half of the items of this dimension. This means that they are uncertain about solutions to environmental problems—especially the ones that ask them to choose between protection of the environment and economic growth or benefits and harmful effects of technology. They are uncertain about, for example, whether the protection of the environment is more important than economic growth, or the benefits of technology are greater than its harmful effects (Figure 2)

The Pearson product-momentum coefficient, r, was computed to establish the relationships among items. A statistically significant positive correlation was found between the items concerning control of science and technology in the area of environmental problems ($r = .177$, $p = .000$). Students who believe in the role of science and technology in controlling any environmental problems also believe that the benefits of technology are greater than its harmful effects ($r = .145$, $p = .000$).

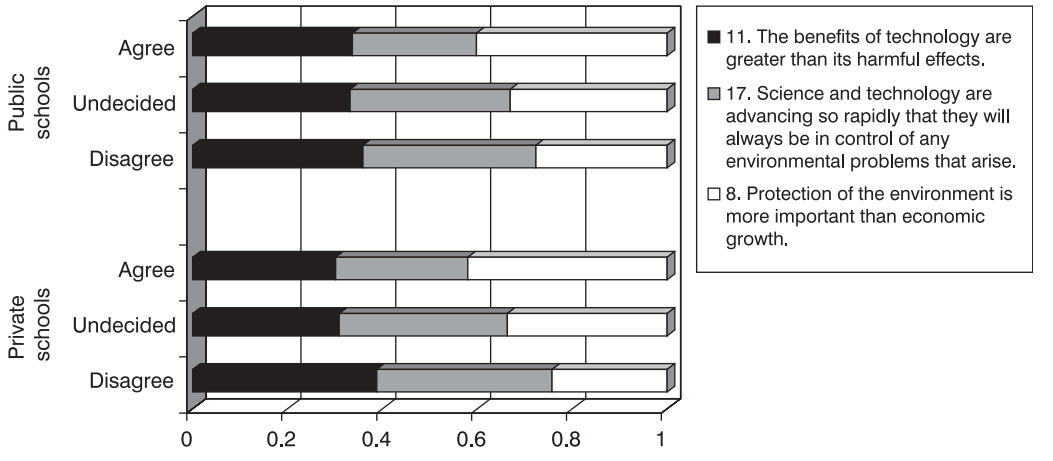

Figure 2. Students' responses for GAS (items 11, 17 & 8)

Awareness of individual responsibility—AIR

A univariate ANOVA was conducted to determine whether there was a significant effect of school type on awareness of individual responsibility. The results showed a significant mean difference between private and public school students with respect to AIR, $F(1,1475) = 27.81$, $p < 0.001$. The η^2 value of 0.037 indicated that 3.7% of variance of the AIR was associated with the school types.

According to the frequency distribution, the most challenging result of this dimension is that almost 80% of the private and 68% of the public school students were agreed on the importance of individual responsibilities in protecting the environment from pollution (item 24). Although it was not surprising to observe concern over environmental problems from the respondents, it is interesting to see an endorsement of individual responsibilities with such a high frequency and less support for the view that environmental protection is a government responsibility (about 30%) (Figure 3). The reason for this is that, other than the announcements made in the media occasionally on environmental problems and some individual attempts through non-governmental organizations, in particular, to make the people aware of such problems, there is no curriculum in this country either on environmental problems, or on the role of individual responsibilities. Results show that students agree on the importance of individual responsibilities in protecting the environment from pollution, but beyond this point they seem to be confused about both the meaning and content of these individual responsibilities, which is probably largely a result of lack of education. According to their answers for the items concerning the relation between lifestyles and environmental destruction, they can accept that a change to lifestyles is necessary to protect natural resources but they are unsure about how to do this (Figure 4).

The Pearson product-momentum coefficient revealed the above-mentioned relationships between the items. While the item emphasizing the importance of individual

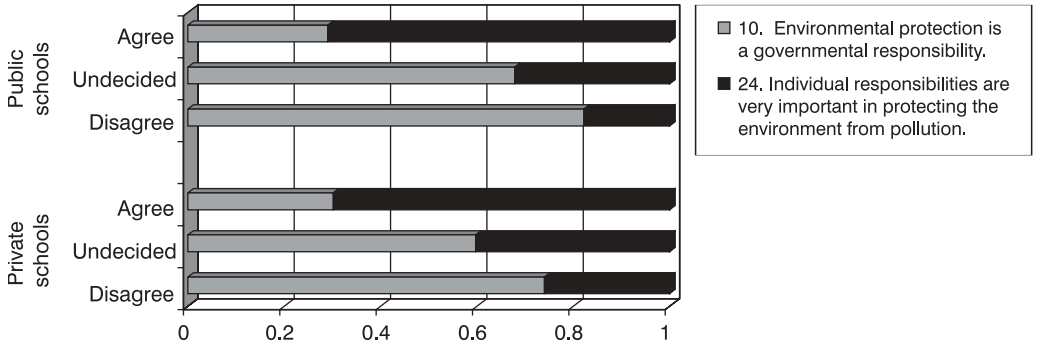

Figure 3. Students' responses for AIR (items 10 & 24)

responsibilities in protecting the environment from pollution (item 24) correlated negatively with the one about government responsibility (item 10) (r = –.089, p = .001) and the lifestyle item (item 31) (r = –.079, p = .002), it is positively correlated with the one related to changing current consumption patterns (item 19) (r = .222, p = .000). Furthermore, a statistically significant positive correlation (r = .259, p = .000) was found to exist between the items related to current consumption patterns (items 25 and 19).

As far as frequencies are concerned, public school students showed less support for the most drastic scenarios, e.g. that increase in land degradation and topsoil losses will make them useless in the food chain (42%) and that the hole in ozone layer will never stop growing if we continue to operate as we do now (53.2%), though over 60% of the private school students expressed agreement with these views.

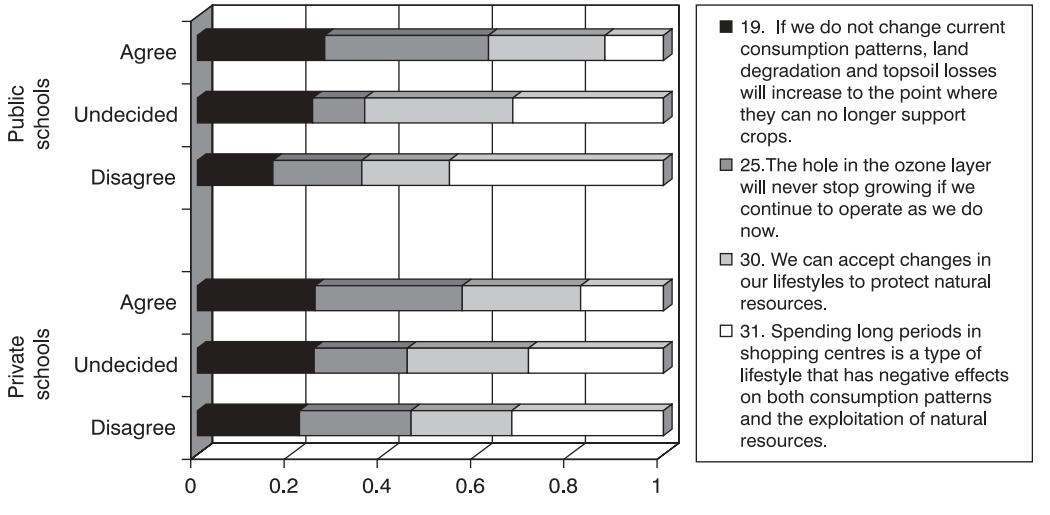

Figure 4. Students' responses for AIR (items 19, 25, 30 & 31)

Awareness of national environmental problems—ANEP

To determine whether there was a significant school type effect on awareness of national environmental problems, a univariate ANOVA was conducted. Results showed a significant mean difference between private and public school students with respect to ANEP, $F(1,1475) = 21.62$, $p < 0.001$. The η^2 value of 0.048 indicated that 4.8% of variance of the ANEP was associated with the school types.

Frequency distribution showed that students' awareness of national environmental problems was quite high; more than 80% of both public and private school students seemed to be aware of Turkey's environmental problems. But the opinions change and become dispersed when the debate turns to distinguishing between industrialization and environmental protection. Although 41.7% of the public and 52.2% of the private school students disagreed with the item that requires making a choice between the need for industrialization over environmental destruction in Turkey, about 20% of the students of both schools were 'undecided'. Two of the major national environmental problems were described as 'loss of biological diversity' and 'population increase in big cities' by 60% of the public school students. Corresponding private school figures were about 70% (Figure 5). Students' responses to these items were significantly correlated (r = .277, p = .000).

However, it should be noted that, although correlation coefficients for all dimensions were found to be significant, the magnitude of relationships among items was small. These findings might be caused by the large sample size. After computing inter-item correlations for each dimension, Pearson product-moment correlation coefficients were computed to determine the relationships among students' total scores on the dimensions of awareness of environmental problems, general attitudes towards solutions, awareness of individual responsibility, and awareness of national

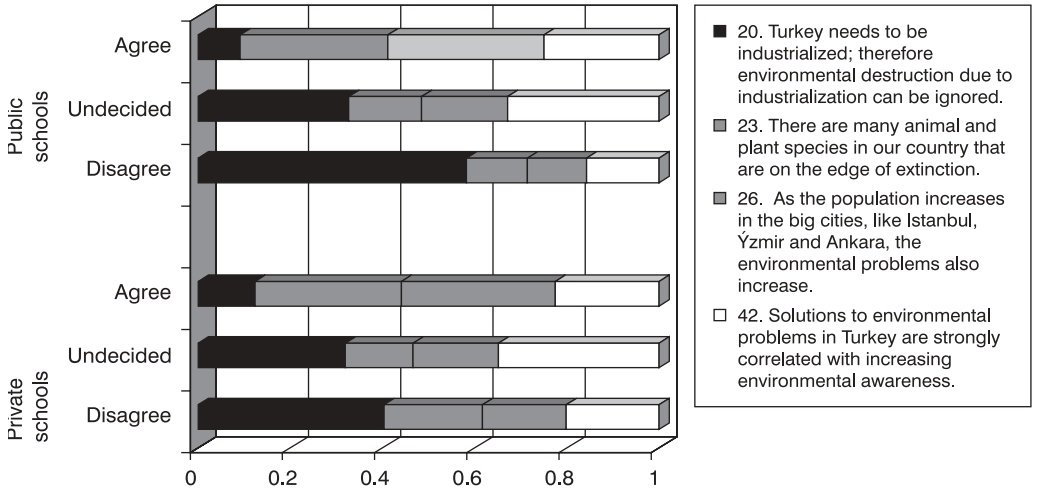

Figure 5. Students' responses for ANEP (items 20, 23, 26 & 42)

Table 4. Inter-correlations among dimensions of the questionnaire

	AEP	GAS	AIR
GAS	0.634**		
AIR	0.605**	0.681**	
ANEP	0.601**	0.579**	0.610**

**Correlation is significantat 0.01level.

environmental problems. The results presented in Table 4 showed that all the correlations were positive and statistically significant.

Don't know responses

As far as 'don't know' responses are concerned, a substantial difference was found over the whole questionnaire between school types although it was not examined statistically. Students from public schools exhibit the greatest 'don't know' responses (more than 10% of them responded thus to 25 questions out of 45), while those from private schools used this response the least (more than 10% of them responded thus to 19 questions out of 45). The variation between schools in the use of the 'don't know' option may also have educational implications. On the other hand, students may be using this response to signify either the lack of relevance of an issue to them, or they may perceive that the response would vary depending on the situation. The percentage of students from all schools who chose the 'don't know' item ranged from 1.4 to 30.5 over all the items (Figure 6).

These findings suggest that students living in Ankara, conforming to the profile in Table 1, have a positive attitude towards the environment, although there exists a significant difference with respect to school types and gender. The findings further suggest that most of the respondents were environment oriented. However, although they agree on the importance of individual responsibilities in protecting the environment and although they can accept lifestyle changes to protect natural resources, they are unsure about what these mean in practice.

Discussion of results

Environmental education has been recognized as possessing the capability of meeting environmental challenges through promoting awareness and knowledge on various environmental issues. As far as contents are concerned, environmental education goes beyond the protection of nature and the environment and covers both the natural environment and the cultural, technical, constructed and social one. However, in many countries environmental education is still its infancy, and systematic efforts are not being made to incorporate environmental concepts in any way into the school curriculum. This is evident in the lack of investigations and studies undertaken on specific issues related to environmental education, such as assessing attitudes, beliefs,

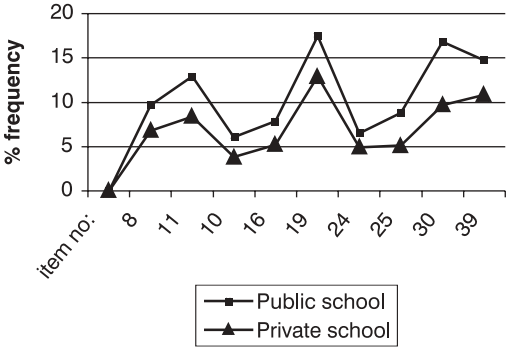

Figure 6. 'Don't know' answers for selected items

awareness and the concerns of the students, teachers and the general public towards environmental subjects. The situation in Turkey, on the other hand, is at the stage of 'just beginning'. Therefore, the establishment of a baseline for planning an environmental education curriculum in Turkey is an urgent need. The current study aims to fulfil the above-mentioned requirement in Turkey through an examination of the structure and prevalence of students' environmental attitudes and beliefs, environmental attitudes of students in different schools with different social and economical indicators and students' attitudes towards their responsibility to environmental problems.

When the frequencies are examined for each dimension, the environmental attitudes of young people in Turkey appear to be positive. On the other hand, the basic belief seen in the dimension concerning general attitudes towards solutions is that things will get much worse unless we make drastic changes in our lifestyles (item 7). Few of the students agreed that science and technology would be able to control environmental problems and around one in four held no opinion on these issues. The general attitude was against seeing science and technology as 'saviours' of the environment. However, there were substantial differences of opinion on items referring to scientific solutions (items 11, 17). These items appear to be related to the blind faith view that scientists will come up with vital solutions to environmental problems. Students' lack of faith in science and technology has been detected in several other studies. Worsley and Skrzypiec (1998), for example, observed a similar attitude in their study of Australian secondary school students. In a cross-national context study undertaken by Weaver (2002), on the other hand, it was recommended that future research should look into the relationship between trust in science and technology, scientific and environmental knowledge, and environmental attitudes. Because the reason for this, as the author stated, is that it is important to look at whether a lack of trust actually impedes environmentalism. This is very important in having a better understanding of the mechanisms behind this relationship. Determining the kind of information that translates knowledge into environmental attitudes will help very much in constructing an environmental education

strategy in Turkey. The frequencies for several items (items 13, 17, 39) show that very few of the students expressed optimism about the future. Furthermore, the priority of the environment over other issues (item 8) is not widely supported; students seemed to be unsure on this item. Students expressed optimism about the future and also expressed their belief in the importance of individual responsibilities in preventing environmental problems though they are not sure about the priority of the environment over other issues. The conclusion made by Connell *et al.* (1999) is significant in explaining this attitude. According to the results of the study, the majority of the young people (16 to 17 year-old students) in Australia believed that change can come about if people change their attitudes. However, at the same time students believed that the future was going to get worse and that, as individuals, they could hope to do very little about it. The authors, therefore, called for greater attention to environmental action competence as a focus in environmental education. It was suggested that this could involve focusing the curriculum around the development of a realistic sense of hope and optimism through practical experience in working collaboratively to address issues of environmental quality.

Evaluation of the frequencies for the other dimension, awareness of individual responsibility, on the other hand, revealed that students are unable to understand the relationship between lifestyles and concern with the environment. Similar conclusions were derived from a study into the attitudes and behaviour of young people in Japan (Barrett *et al.*, 2002). They concluded, as a result of their survey, that young people's expectations of the future quality of the environment are mixed with the view that better environmental conservation requires changes in lifestyles, values and human behaviour. According to the authors, young people in Japan rank environmental protection higher than economic growth, but they were worried about how it might be possible to balance both growth and environmental conservation. A study undertaken by Bonnett and Williams (1998) on primary school children's environmental attitudes in England, on the other hand, concludes that, while children were aware of potential conflicts of interest between nature and human needs, this awareness had a rather academic and abstract quality. They had little sense of what might be involved in coming to resolutions. Moreover, a study conducted by Kuhlemeier *et al.* (1999) revealed that, although Dutch students' willingness to make sacrifices for environmental protection was less favourable, they were aware of the relation between lifestyles and environmental destruction.

When the environmental attitudes of young people in Turkey with respect to gender and school type were examined, the current study showed that there is a statistically significant effect of these variables in favour of girls and private school students respectively. Concerning gender difference, previous research studies have shown that under certain circumstances, females express greater concern than do males (Grifford *et al.*, 1983; Worsley & Skrzypiec, 1998; Eagles & Demare, 1999; Tikka *et al.*, 2000). Although the current study focuses on just the attitude difference between the genders, it is worthwhile mentioning the related literature on this issue, just to confirm that females express greater concern than do males in many places of the world, whatever the cultural or educational status. In this context, in their studies,

Bord and O'Connor (1997) claim that gender differences in environmental surveys result from differences in perceived vulnerability to risk from the environment, not necessarily differences in ecological sensibility. They mention that females express greater concern in most of the studies 'in risk-related environmental issues', such as chemical and radioactive wastes, nuclear power, food preservatives and irradiated food. 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. They also found that when health risk perceptions enter the environmental concerns equation, the gender gap disappears. In her five-country comparison on the determinants of environmental attitudes, Weaver (2002) found 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 the respective concerns. However, the author found no significant effect of gender in Great Britain, Russia or Japan. Loughland *et al.* (2003) also emphasizes the gender difference as one of the important factors influencing young people's conceptions of the environment. In the present study we found that girls had higher mean scores than boys on each dependent variable, indicating that they were more aware of environmental problems, individual responsibility and national environmental problems, and that they had more positive attitudes toward the solutions to the problems. Also the MANOVA results indicated statistically significant differences between boys' and girls' attitudes towards the environment in favour of girls.

The current study shows that students enrolled in private schools have a higher awareness on all dimensions of the questionnaire (Table 2, Figure 1–5). For example, when the descriptive statistics were examined, it was revealed that students from private schools had parents who were more educated and who tended to be employed (Table 1), compared to students from public schools. This result can be evaluated by the effect of parents' educational level and employment on environmental awareness. Although Turkish culture is a male-dominated one, mothers tend to set the household level of education and therefore the level of education of mothers plays a role in the environmental awareness of the students. Makki *et al.* (2003), on the other hand, concluded in their study of the relatively male-dominated Lebanese culture, that students with 'more educated' fathers had significantly higher environmental knowledge scores and this was not related to the mothers' educational level. The authors explained this as the fathers in this country setting the household educational tone.

The study also finds that school may play some role in the formation of students' views on the environment. Differences observed between students in public and private schools (Table 2) indicate that particular sets of environmental opinions are associated with schools. Various explanations can be given for the difference. As indicated by Kuhlemeier *et al.* (1999), for example, the composition of the student population (family background or prior achievement); the enthusiasm, experience and competence of the team of teachers; the curricular offering; the quality of instruction; and the social climate (Gamoran & Nystrand, 1994) may all play a part.

In conclusion, the findings indicate that most respondents were positively oriented towards the environment. Despite differences between categories of individual, support for the conservation of the environment is both widespread and strong. In view of the fact that there is no formal environmental education in Turkey and that we are at the stage of 'just beginning', the results of this study are significant for the establishment of an EE strategy. The results of this study and also the one performed as a five-country comparison study (Weaver, 2002) suggest that future research should look more thoroughly into the kinds of environmental attitude across regions. This is to investigate the parameters that impede and/or facilitate environmentally friendly attitudes of young people, and to use the data gained for setting up an EE strategy and action plan for Turkey. To determine different kinds of environmental attitudes across the country would be helpful both for policy-makers and educators. Additionally, the attitudes of children are a major focus of many environmental education programmes and the development of environmentally sensitive attitudes in youth is seen as very important for a sustainable future.

Conclusions

The environmental attitudes of young people in Ankara can be summarised as follows: most of the subjects are environment oriented. Although there are differences between categories of individuals, a widespread support for conservation of the environment was observed. The young people are not in a position to differentiate between economic growth, industrialization and environmental protection. They believe in the importance of individual responsibility in protecting environmental degradation. They are unable to fully comprehend the relationship between lifestyles and concern with the environment. They can ascertain most emerging environmental problems in Turkey. They are undecided between the need for industrialization in Turkey and that for environmental protection. Girls and private school students display more positive attitudes. Private schools also display another characteristic in that the level of parental education is higher.

There is no EE curriculum currently in Turkey. The fact that most of the respondents were so environmentally oriented is possibly explained by the number of campaigns and projects in the country on the issue. But, as the results of this study imply, although such projects are very helpful in increasing awareness, they are not enough to equip young people with the knowledge that is required to tackle the problems. The differences detected in school type, however, suggest that EE brings about the desired outcomes. As was stated above in the Introduction, the wider financial, physical and functional opportunities at private schools lead to EE being much more widespread.

As far as the national EE strategy in Turkey is concerned, these results strongly suggest that:

- On the basis of the associations of different attitudes with different school types, the different social and economic characteristics in different regions of Turkey, together with the similar situations reported in the literature (Weaver, 2002), we

suggest that future research should look more thoroughly into the kinds of environmental attitudes across regions. This is in order to investigate the parameters that impede and/or facilitate environmentally friendly attitudes of young people living in different regions of Turkey, which may mean that different regional EE strategies need to be established.

- As the results of this study imply and as stated in the related literature, girls have a more positive environmental attitude than boys and the attitudes of young people are very important for a sustainable future. Therefore, the planned EE strategy for Turkey should consider the situation of girls in more detail. Moreover, the rate of literacy in Turkey differs according to gender, as was indicated by the State Statistics Institution (1997); it is 72% for females and 89% for males. In addition, most of the girls, especially in the east part of the country, do not attend school for both economic and cultural reasons. Therefore, any EE strategy to be set up in Turkey should cover not only the schools but should also be integrated with a current project ('Let the girls go to school'), that aims to encourage families to send their daughters to school.
- The planned strategy should include activities in the curriculum that help students to understand how daily life and work can be adapted to improve the environment, both now and in the future, and to focus upon the development of a realistic sense of hope and optimism through practical experience in working collaboratively to address issues of environmental quality.
- In view of the findings concerning young people's lack of trust in science and technology as the solution to environmental problems and in the light of the related literature (Weaver, 2002; Loughland *et al.*, 2003), it is suggested that an EE strategy should consider the relationship between trust in science and technology, scientific and environmental knowledge, and environmental attitudes. This follows on from one of the results of this study: Private school students in this study who displayed more positive attitudes toward the environment, also expressed agreement with the most drastic scenarios on subjects like soil degradation and ozone depletion, which require scientific and environmental knowledge. Public school students who displayed much less consciousness, on the other hand, showed much less support for those scenarios.

Notes on contributors

Gaye Tuncer is an instructor in elementary science education at Middle East Technical University, Turkey. She received her Ph.D. (1995), MS (1989) and BS (1987) in Environmental Engineering from Middle East Technical University. She has been giving two courses, 'Environmental Education' and 'Education and Awareness for Sustainability', at the Middle East Technical University, Faculty of Education, Department of Elementary Education, since 2002. Her main research interest is environmental education.

Hamide Ertepinar is a professor in elementary science education at Middle East Technical University, Turkey. She received her Ph.D. (1985) in Chemistry from

Middle East Technical University. Her main research interests are students' conceptions of science, misconceptions in chemistry and science education, and conceptual change and environmental education.

Ceren Tekkaya is an associate professor in elementary science education at Middle East Technical University, Turkey. She received her Ph.D. (1996) and MS (1991) in Science Education from Middle East Technical University and a BS in Biology from Middle East Technical University (1988). Her main research interests are students' conceptions of science, especially biology, teaching and learning of biology in elementary and high schools, and pre-service science teacher education.

Semra Sungur is an assistant professor in elementary science education at Middle East Technical University, Turkey. She received her Ph.D. (2004) and MS (2000) in Secondary Science and Mathematics Education from Middle East Technical University and a BS in Science Education from Middle East Technical University (1998). Her main research interests are problem-based learning, self-regulation and constructivism.

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